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ABSTRACT

A study undertaken among commercial strawberry growers in the Fraser Valley of British Columbia, Canada, sought to define the network of personal contacts as used by the farmers in obtaining information relevant to growing practices. Growers were divided into four adopter categories: laggards, late majority, early majority, and innovator-early adopters. Although the level of adoption was generally high, the higher levels of practice adoption occurred among those growers characterized by larger farms and higher incomes who were relatively younger, were better educated, and who had better educated wives. Ethnic differences in patterns of personal contact and of adoption were noted. The study concluded that personal contacts were far more effective than impersonal sources of information in effecting the adoption of innovations; that the extension service tends to concentrate on personal contacts with a few farmers and to use impersonal contacts for the majority; and that the extension service's use of group instruction and local opinion leaders can extend the range of personal contacts and thus more effectively encourage innovation. (MF)

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PERSONAL CONTACTS AND THE ADOPTION OF INNOVATIONS

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RURAL SOCIOLOGY MONOGRAPHS

#1 Adult Education and the Adoption of Innovations by Orchardists in the Okanagan Valley of British Columbia. By Coolie Verner and Frank W. Millerd, 1966.

#2 The Adoption or Rejection of Innovations by Dairy Farm Operators in the Lower Fraser Valley. By Coolie Verner and Peter M. Gubbels. Ottawa: Agricultural Economics Research Council of Canada, June, 1967. Publication #11.

#3 Adoption and Rejection of Innovations by Strawberry Growers in the Lower Fraser Valley. By E. Patrick Alleyne and Coolie Verner, 1969.

#4 Personal Contacts and the Adoption of Innovations. By E. Patrick Alleyne and Coolie Verner, 1969.

PREFACE

This is a companion study to Monograph #3 which analyzed the adoption and rejection of innovations by a sample of strawberry growers. The present monograph treats their use of information sources with particular emphasis on interpersonal contacts using sociometric analysis.

As in the earlier monograph, we are indebted to the strawberry growers who contributed so willingly the data gathered in rather lengthy interviews. The local District Horticulturists and District Agriculturists were most co-operative in facilitating this research and in making available to us their extensive knowledge of the strawberry industry as well as of the growers.

Our thanks also to Mrs. Sandra Queale and Dr. Gary Dickinson for preparing this manuscript for publication.

E. Patrick Alleyne,
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Vancouver,
Fall, 1969.

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CHAPTER ONE

INTRODUCTION

The successful diffusion of new agricultural technology to influence the improvement of agricultural production and thus the quality of rural life is a matter of great concern. For the most part, the rural farm population of Canada exists at a sub-marginal level and many Canadian farmers are in the poverty segment of the society.[1] Any efforts to change the status of this group of farmers living on generally small and uneconomic farms will require a massive effort involving farm capitalization and consolidation, improved marketing, and farmer education. Of these three areas, farmer education is undoubtedly the most important as it is basic to all others.

Agricultural productivity is partially a matter of intelligent management which involves, among other things, the acceptance of innovations in agricultural technology. This, in turn, depends primarily on access to information and the willingness of farmers to use the channels to information that may be available to them. Information is diffused to farmers from a number of sources but the reception and use of the information itself is influenced by a complex of factors not clearly understood. Different sources of information evoke variable responses from different farmers so that there is no simple process which will insure that pertinent information is diffused adequately among all farmers in a given situation.

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[1] Donald Whyte, "Rural Canada in Transition", in Rural Canada in Transition, M.A. Tremblay and W.J. Anderson, eds. Ottawa: Agricultural Economics Research Council of Canada, 1966, pp. 1-113.

The acceptance and use of information leading to the adoption of innovations is facilitated by the work of the local agricultural extension agent but since this agent is a source of information he too receives variable response from his clientele. In order to enhance the effectiveness of extension personnel it is useful to determine the factors which influence the contacts between farmers and agents. With such an identification, extension agents can modify and adapt their behaviour to increase the effective diffusion of information leading to adoption.

By and large, farmers tend to depend more upon each other for information and advice than they do upon all other sources. Thus, the interpersonal communication patterns of farmers are potentially useful channels for the diffusion of information. But here again the response is variable and the effectiveness of interpersonal communication is also influenced by a variety of factors not yet clearly understood.

The study reported here examines the availability and effectiveness of sources of information among strawberry growers in the Fraser Valley of British Columbia. At the outset, the sources of information more generally available are identified and classified in order to determine the degree of use and effectiveness. Contacts between agricultural extension personnel and farmers are analyzed in some detail in an effort to identify some of the factors that influence this particular channel of information. Finally, the interpersonal communication patterns are identified and analyzed in some depth.

PROCEDURE

In conducting this study, the analytical survey method was used and data were collected by personal interviews in the summer of 1967. The population for this study consisted of all 194 commercial strawberry growers known in the Fraser Valley of British Columbia.

Sample

For the main body of the study a fifty per cent sample was drawn by random selection from the population of 194 strawberry growers in the Fraser Valley. This sample totalled 97 growers which was increased to 100 to facilitate the use of percentages in univariate distributions.[2]

Cluster

The spatial distribution of the growers was such that 46 were found in one locality group. Since the study sought to analyze sociometric relationships among growers, additional interviews were conducted with all growers in this locality. Twenty-two of these had been drawn in the original random sample, consequently, twenty-four additional interviews were completed. The additional growers not in the random sample were excluded from the general analysis of the data but were included in that part of the analysis relating to interpersonal contacts.

Data Collection

Interview schedules were prepared and pre-tested on growers not drawn in the random sample. Personal interviews were completed with all respondents in both the random sample and the cluster. The interview schedule included data relating to the personal characteristics of the growers, their farm operations, contacts with the District Agriculturists, sources of information, and their personal contacts. (Appendix I).

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[2] For more details of this sample see: Patrick Alleyne and Coolie Verner, The Adoption and Rejection of Innovations by Strawberry Growers. Vancouver: Department of Agricultural Economics, University of British Columbia, 1969.

Data Analysis

The interview schedules were coded and keypunched on cards for analysis on the IBM 7040 computer at the University of British Columbia Computing Centre. Statistical procedures used in analyzing the data included partial correlations, chi-square, and differences between proportions. In tests of significance the .05 level was accepted but the .01 and .001 levels of significance are indicated where these occur. In addition to the statistical analysis, a sociometric analysis of personal contacts was made.

The basic dependent variable in this study is an adoption score computed on the basis of the acceptance or rejection of six innovations as reported in detail elsewhere.[3] This score was used to classify respondents into adopter categories. Recorded adoption scores ranged from 10 to 30 with a mean of 25.70 and a standard deviation of 3.914. Ten per cent of the sample had a score of 20 or less, 30 per cent scored between 21 and 25, 43 per cent scored 26 to 28, and 17 per cent had the maximum score of 30. The division of the sample into adopter categories was made on the basis of the mean and standard deviation and the sample frequency distribution was tested for goodness of fit at the .05 level and found to approximate a normal curve distribution. The adopter categories were distributed as follows:

Laggards	12 respondents
Late majority	28 respondents
Early majority	43 respondents
Innovator-Early adopter	17 respondents

For some kinds of analysis the laggard and late majority categories were combined as late adopters and the early majority and innovator-early adopter categories were combined as earlier adopters.

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[3] *Ibid.*

THE STRAWBERRY GROWERS

The Industry

The commercial production of strawberries in British Columbia is concentrated on the south side of the Fraser River in the Lower Fraser Valley. This is a low-lying area of recent silty and clayey flood plain and deltaic deposits with a mild marine climate of warm summers and mild humid winters. There is no marked difference in the range between summer and winter temperatures and the number of frost-free days averages between 180 and 214. Annual rainfall varies from one part of the area to another with a range of 36.3 to 64.4 inches. The heaviest precipitation is recorded in the autumn and winter and rarely exceeding 13 inches from May to September.

Agricultural production in the Valley is highly diversified ranging from part-time mixed farming through dairying, poultry, forage and grain, potatoes, vegetables, green houses, nursery products, seeds, tree fruits, fur breeding, specialized horticulture, and small fruits including strawberries. In 1964, the Fraser Valley was estimated to have 37 per cent of the total number of farms in the province and the farm population was 36.3 per cent of the total rural population. In 1967 some 1,650 acres were planted in strawberries with an average yield exceeding six tons per acre. This acreage generally is in small parcels.

The Farmers

The strawberry growers in the Lower Fraser Valley are very similar to other farmers in the province in terms of the socio-economic characteristics studied. The median age category was 45 to 54 years and the older respondents had larger families. Approximately one-third of the sample were in the median category of 3 to 4 children.

Slightly more than half of the respondents reported 8 years or less of school attendance with 42 per cent having had some high school and 11 per cent completing high school. The wives of respondents were generally better educated than their husbands with the median years of school completed by wives being 9 to 11 years. Seven respondents reported attending agricultural courses while in high school and one half of them had attended such courses in adult education. Forty-one respondents reported attending adult agricultural courses in 1966 and a lesser number in 1967.

The majority of growers were long established on their farms with 65 per cent resident on the same farm for at least 10 years. The older residents generally reported more experience in farming and in growing strawberries. Two-thirds of the growers had been farming for 20 years or more with only 28 per cent having such experience with strawberries. Fifty-four per cent of the growers operated farms of 15 acres or less and 17 per cent reported less than 5 acres. Farms of at least 120 acres were reported by one-fifth of the respondents. While small fruit farming was the major enterprise for most respondents, some reported vegetables, dairying, or poultry as an additional farming activity. As expected, those with the largest farms had the largest acreage in strawberries as well as other agricultural activities. Strawberries were the major crop for 41 per cent of the growers and one-half of them had less than 5 acres in that crop.

The median gross agricultural income was in the category of $5,000 to $10,000 with 45 per cent of the respondents reporting more than $10,000, 15 per cent more than $55,000, and 18 per cent less than $3,000. The predominance of small acreages in strawberries resulted in a lower gross income from the sale of strawberries with the median in the $3,000 to $5,000 category. Twenty growers reported no income from agricultural produce other than strawberries. More than two-thirds (72 per cent) of the respondents were equally distributed in the categories of $10,000 to $29,000 and $30,000 to $59,000 for the estimated farm value. Fourteen growers listed their holdings as worth more than $150,000. The larger operators who were longer established owned the more valuable farms. Sixty per cent of the growers reported no off-farm employment.

Although the level of adoption was generally high, the higher levels of practice adoption occurred among those growers characterized by larger farms and higher incomes who were relatively younger, were better educated, and who had better educated wives.

Ethnic Influences

Fifty-four per cent of the respondents were immigrants, the majority coming from Eastern Europe and Japan. Within the sample of 100 respondents, there were 32 classified as Menonites and 23 Japanese. There were statistically significant differences between ethnic groups for 16 socio-economic variables and for some types of extension contact.

More Japanese respondents owned their farms than was found among all other growers and while they were generally the most experienced farmers, they showed the lowest level of practice adoption and participated least in agricultural adult education activities. The educational levels of Menonites and their wives were the lowest among all ethnic groups and they had the least social participation. The "other" respondents had the larger, more valuable farms with the larger acreages in strawberries and in other agricultural enterprises. Within the 3 to 15 acre category, however, a large proportion of Japanese respondents reported having other agricultural enterprises. Almost twice the percentage of the "other" respondents who were neither Japanese nor Menonite were in the upper adoption level compared to Japanese respondents. Menonites showed a higher level of practice adoption compared to Japanese, but a lower level than the "other" group.

CHAPTER TWO

SOURCES OF INFORMATION

Diffusion research has given considerable emphasis to the question of the sources of information which have been relevant to the adoption of innovations at various stages in the adoption process. This has shown that there are variations in the importance of information sources by adopter categories, by stage in the adoption process, by the characteristics of the innovation, and among the farmer populations studied. In general, personal sources and the interpersonal network of communication are of special importance as progress is made through evaluation, trial and adoption.[1] Commercial sources may be important at the trial stage, especially where new equipment requires information on procedures. Leuthold[2] suggests that the relative importance of various sources beyond trial needs further investigation.

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[1] J.M. Bohlen, "The Adoption and Diffusion of Ideas in Agriculture," Our Changing Rural Society: Perspectives and Trends, J.H. Copp, ed., Ames, Iowa: Iowa State University Press, 1964, p. 282.

[2] Frank O. Leuthold, Communication and Diffusion of Improved Farm Practices in Two Northern Saskatchewan Farm Communities, Saskatoon: Canadian Centre for Community Studies, 1966, p. 55.

When adopter categories are introduced, the analysis of sources of information becomes more specific and significant differences in communication behaviour are established.[3] According to Rogers,[4] impersonal and cosmopolite sources are more important for relatively earlier adopters. In addition to using more sources, earlier adopters maintain a closer contact with the sources where information is originated. Relatively later adopters place greater reliance on personal than on any other sources.

CLASSIFICATION OF SOURCES OF INFORMATION

In analyzing the sources of information used by the strawberry growers a classification of sources different from that presented by Rogers was used. This is derived from the classification used by Verner and Millerd[5] which was modified by Verner and Gubbels[6] into a two dimensional system that classifies a source by origin and by the nature of the activity. The first alternative corresponds closely to traditional classification models which usually include mass media, commercial, neighbours and friends, and agricultural agencies.[7] The second alternative introduces a new dimension of sophistication by giving consideration to the specific instructional situation relevant to directed behavioural change by the farmer client. The classification by origin and nature of the activity of the information sources used by the strawberry growers is shown in Table I.

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[3] Bohlen, op. cit., p. 282.

[4] Everett M. Rogers, Diffusion of Innovations, New York: The Free Press, 1962, p. 181.

[5] Coolie Verner and Frank W. Millerd, Adult Education and the Adoption of Innovations by Orchardists in the Okanagan Valley of British Columbia. Vancouver: Department of Agricultural Economics, University of British Columbia, 1966.

[6] Coolie Verner and Peter M. Gubbels, The Adoption or Rejection of Innovations by Dairy Farm Operators in the Lower Fraser Valley. Ottawa: Agricultural Economics Research Council of Canada, 1967, pp. 29-39.

[7] Bohlen, op. cit., p. 282.

TABLE I

CLASSIFICATION OF SOURCES OF INFORMATION

Sources of Information	Classification by Nature of the Activity	Classification by Origin
General farm magazines	M	C
Special horticultural magazines	M	C
British Columbia Department of Agriculture publications	M	G
Federal Department of Agriculture publications	M	G
Radio, television, newspapers	M	C
Agriculture field days and demonstrations	IG	G
Agriculture meetings	IG	G
Meetings of the Horticultural Improvement Association	IG	FO
Growers' Short Courses sponsored by the L.M.H.I.A.	IG	FO
Growers' Short Courses held in the State of Washington, U.S.A.	IG	FO
Other Adult Education courses	IG	G
Vocational agriculture courses	IF	G
University courses in agriculture	IG	G
Personal visit to an Experimental station or to the University of British Columbia	II	G
District Horticulturist	II	G
District Agriculturist	II	G
Neighbours, friends, wife, children and relatives	P	P
Salesmen and dealers	II	C
Manager or employees of the processing plant	II	C
Farm employees	P	P
Observation on other farms	P	P
Foreign travel or foreign publications	P	P
Personal experience or ideas	P	P
Meetings of the Abbotsford Growers' Co-operative	IG	FO
Meetings of the Matsqui-Aldergrove Berry Growers' Association	IG	FO
Meetings of the Pacific Co-operative Union	IG	FO
Newsletters of the Pacific Co-operative Union	M	FO
Meetings of the Fraser Valley Fruit and Vegetable Growers Association	IG	FO

Key:				
	P	personal	M	mass
	IG	Instructional group	II	Individual Instructional
	G	Government	C	Commercial
	FO	Farm organization		

THE USE OF INFORMATION SOURCES CLASSIFIED BY ORIGIN

This method of classification includes 4 sub-categories:

Government:	information sources originating with the federal or provincial governments;
Commercial:	information sources originating with business agents, custom operators or establishments dealing with farmers;
Farm organization:	information sources originating from farmers' organizations, such as co-operatives and the Lower Mainland Horticulture Improvement Association. (L.M.H.I.A.);
Personal:	information sources that lie within the farmer's personal orbit--friends, family, personal observation and experience.

Personal sources had the highest degree of use within all adopter categories, but was slightly larger among the laggard and late majority respondents. Government information sources, which ranked second in importance for all adopter categories, were used least by laggards (20.3 per cent) and slightly more by the "majority" respondents (26.5 per cent). The highest percentage use of government sources (32.5 per cent) was by the early adopter-innovator category. (Table II).

The use of commercial and farm organization sources did not show any distinct pattern in terms of adoption performance. Commercial sources were third in importance for all adopter categories except the late majority respondents who used a higher percentage of farm organization sources. Early majority respondents reported the highest percentage use of commercial sources (18.7 per cent), followed by laggards (17.0 per cent), early adopter-innovators (11.5 per cent), with the lowest use by the late majority (9.9 per cent). The least used source type was farm organizations, ranging between 7.4 and 12.1 per cent and there was no significant difference between adopter categories in the proportional use of that source type.

TABLE II

PERCENTAGE DISTRIBUTION OF THE USE OF SOURCES OF INFORMATION BY ADOPTER CATEGORY WITH THE SOURCES CLASSIFIED BY ORIGIN

Origin	Adopter Category			
	Laggard %	Late Majority %	Early Majority %	Early Adopter-Innovator %
Government	20.3	26.2	26.8	32.5
Commercial	17.0	9.9	18.7	11.5
Farm organizations	7.4	12.1	8.9	7.0
Personal	55.3	51.8	45.6	49.0
Total	100.0	100.0	100.0	100.0

Note: A null hypothesis of no difference in class proportions between adopter categories for each type of information source was used at the .05 level. The chi-square value of 9.422 was not significant.

The use of personal and government sources in this study is in agreement with Rogers' observations. Personal sources were relatively more important at the lower adoption level while sources which were in closer contact with the origin of new ideas--including the District Horticulturist, the experiment station and the University--were used to a greater extent by the early adopter-innovators.

Data respecting the differential use of information sources at the awareness stage for each innovation is presented in Table III and the chi-square test indicated significant differences at the .001 level. A significantly larger percentage of respondents used government sources for three of the more recent innovations--soil analysis for nematode control, captan for fruit-rot control and chemical weed control. (Table IV). The situation is reversed with virus-free plants, a long established practice, and the recently introduced picking carts. It is reasonable to assume that government agencies must have made a special

TABLE III
PERCENTAGE DISTRIBUTION OF SOURCES OF INFORMATION USED AT THE AWARENESS STAGE FOR EACH INNOVATION WITH SOURCES CLASSIFIED BY ORIGIN

Innovation	Classified by Origin				
	Government %	Commercial %	Farm Organization %	Personal %	Total %
Soil analysis for nematode control	28.9	15.6	13.3	42.2	100.0
Captan for fruit-rot control	22.7	23.7	14.4	39.2	100.0
Change from hill planting to matted-row	11.0	2.4	4.9	81.7	100.0
Chemical weed control	18.2	27.3	12.1	42.4	100.0
Picking carts	8.7	9.8	8.7	72.8	100.0
Virus-free certified plants	20.3	13.9	15.2	50.6	100.0
Average: all innovations	18.3	15.5	11.4	54.8	100.0

Note: A null hypothesis of no difference in class proportions between innovations for each type of information source was used. The chi-square value of 78.420 is significant at the .001 level.

effort in the introduction of this latter innovation to growers, in view of the importance of reducing the incidence of disease and heavy crop losses.

Evidence of a more extensive use of commercial sources for innovations involving the use of chemicals is shown in Table V. Some of the responses indicated that salesmen were fairly active in this regard, as farmers noted: "Salesmen keep us pretty well informed"; or "In this area we find out more about chemicals from salesmen." The influence of salesmen as a commercial source of information at the awareness stage may be somewhat understated in this study. In a few instances a grower, who is classified as a "personal" source, may do some custom operations or he may be a chemical salesman, therefore, it would be advantageous for him to encourage other growers to use the relevant innovation even if done in a somewhat neighbourly manner as distinct from the commercial

TABLE IV
Z VALUES FOR THE DIFFERENTIAL USE OF GOVERNMENT INFORMATION SOURCES BETWEEN INNOVATIONS AT THE AWARENESS STAGE IN THE ADOPTION PROCESS RELEVANT TO THE CLASSIFICATION OF SOURCES BY ORIGIN

	Innovation				
Innovation	Captan for fruit -rot control	Change from hill planting to matted row	Chemical weed control	Picking Carts	Virus-free certified plants
Soil analysis for nematode control	1.020	3.168**	1.672	3.693**	1.414
Captan for fruit-rot control		2.212*	0.796	2.750**	0.390
Change from Hill planting to matted row			-1.440	0.542	-1.827
Chemical weed control				2.026*	-2.320*

* Significant at the .05 level. ** Significant at the .01 level.

TABLE V
Z VALUES FOR THE DIFFERENTIAL USE OF COMMERCIAL INFORMATION SOURCES BETWEEN INNOVATIONS AT THE AWARENESS STAGE IN THE ADOPTION PROCESS RELEVANT TO THE CLASSIFICATION OF SOURCES BY ORIGIN

	Innovation				
Innovation	Captan for fruit-rot control	Change from hill planting to matted row	Chemical weed control	Picking carts	Virus-free certified plants
Soil analysis for nematode control	-1.434	3,300**	-2.038*	1.237	0.340
Captan for fruit-rot control		4.542**	-0.550	2.628**	1.792
Change from Hill planting to matted row			-4.980**	-2.236*	-3.075**
Chemical weed control				3.199**	2.209*
Picking carts					-0.895

* Significant at the .05 level. ** Significant at the .01 level.

salesmen. The significantly larger percentage use for virus-free plants and picking carts in comparison with the use of matted rows was accounted for largely by advertisements in newspapers and magazines. On the other hand, there was hardly any relevance of commercial sources to the introduction of the matted row system to growers.

There were few instances of significant differences with respect to farm organization sources and none exceeded the .05 level. (Table VI). The pattern observed suggests that farm organizations have been more active than formerly, hence their importance for two of the more recent innovations.

TABLE VI

Z VALUES FOR THE DIFFERENTIAL USE OF FARM ORGANIZATION INFORMATION SOURCES BETWEEN INNOVATIONS AT THE AWARENESS STAGE IN THE ADOPTION PROCESS RELEVANT TO THE CLASSIFICATION OF SOURCES BY ORIGIN

	Innovation				
Innovation	Captan for fruit-rot control	Change from hill planting to matted row	Chemical weed control	Picking carts	Virus-free certified plants
Soil analysis for nematode control	-0.225	2.100*	0.256	1.057	-0.389
Captan for fruit-rot control		2.241*	0.490	1.245	-0.160
Change from Hill planting to matted row			-1.800	-1.055	-2.429*
Chemical weed control				0.802	-0.634
Picking carts					-1.419

* Significant at the .05 level.

Differences in the use of personal sources were all significant at the .01 level. (Table VII). The greater use of personal sources for simpler innovations which do not involve the use of chemicals is particularly outstanding. Frequently used information sources for picking carts included farm employees and personal observations on other farms.

TABLE VII

Z VALUES FOR THE DIFFERENTIAL USE OF PERSONAL INFORMATION SOURCES BETWEEN INNOVATIONS AT THE AWARENESS STAGE IN THE ADOPTION PROCESS RELEVANT TO THE CLASSIFICATION OF SOURCES BY ORIGIN AND BY NATURE OF THE ACTIVITY

	Innovation				
Innovation	Captan for fruit-rot control	Change from hill planting to matted row	Chemical weed control	Picking carts	Virus-free certified plants
Soil analysis for nematode control	0.434	-5.766**	-0.029	-3.750**	-1.200
Captan for fruit-rot control		-6.142**	-0.462	-4.800**	-1.629
Change from Hill planting to matted row			5.737**	1.506	4.691**
Chemical weed control				-4.393**	-1.171
Picking carts					3.241**

** Significant at the .01 level.

THE USE OF INFORMATION SOURCES CLASSIFIED BY THE NATURE OF THE ACTIVITY

The four sub-categories within this system of classification are:

Personal:	direct face-to-face communication between the communicator and the receiver. The individual sources included in this type are the same as for the classification by origin with the addition of foreign travel;
Mass:	information media directed to farmers in general with no provision for two-way communication;
Instructional group:	educational activities in which information is presented to a number of farmers simultaneously with an opportunity for two-way communication;
Individual Instructional:	educational activities which are conducted with a single farmer at a time, such as farm visits by the District Horticulturist and personal visits to a research station.

There were no significant differences among adopter categories in the use of different information sources classified by the nature of the activity. (Table VIII). The percentage use of personal sources remained the same as for the previous classification, and they were, therefore, the most extensively used.

Individual instructional information sources were second in importance. Even though the differences are not statistically significant, there was more extensive use of that type at the upper adoption level (33 to 34 per cent), compared to late majority and laggard respondents (25 to 27 per cent). Instructional group sources were used slightly more than mass types, but in neither instance was there a trend in the proportional use between adopter categories.

The rank order and pattern of use of personal and individual-instructional group sources is in general agreement with the findings of Verner and Gubbels.[8] In this instance, however, the use of instructional group sources exceeded that of mass types.

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[8] Verner and Gubbels, op. cit., p. 33.

TABLE VIII

PERCENTAGE DISTRIBUTION OF THE USE OF SOURCES OF INFORMATION BY ADOPTER CATEGORY WITH THE SOURCES CLASSIFIED BY THE NATURE OF THE ACTIVITY

Nature of the Activity	Adopter Category Laggard %	 Late Majority %	 Early Majority %	 Early Adopter Innovator %
Personal	55.3	51.8	45.6	49.0
Mass	5.3	7.1	8.5	6.0
Instructional group	12.8	15.9	11.9	12.0
Individual instructional	26.6	25.2	34.0	33.0

Note: A null hypothesis of no difference in class proportions between adopter categories for each source of information was used at the .05 level. The chi-square value of 9.422 was not significant.

The chi-square test indicated significant differences in the use of different source types between the innovations at the awareness stage. (Table IX). A detailed analysis using Z values to test the difference between proportions is shown in Tables X through XII. There was consistency in the significantly greater use of particular source types such as government and commercial (classified by origin) and mass and individual instructional (classified by the nature of the activity) for the recent innovations of a more complex nature, compared to the proportional use of such sources for the matted row system and picking carts. Individual instructional sources were mainly the District Horticulturist, fieldmen and dealers, and visits to the experimental station. On the other hand, mass types included government publications with information relevant to the innovations. There were only two significant differences with respect to instructional group sources. (Table XI).

TABLE IX

PERCENTAGE DISTRIBUTION OF SOURCES OF INFORMATION AT THE AWARENESS STAGE FOR EACH INNOVATION WITH THE SOURCES CLASSIFIED BY NATURE OF THE ACTIVITY

Innovation	Classified by Nature of the Activity				
	Personal %	Mass %	Instructional Group %	Individual Instructional %	Total %
Soil analysis for nematode control	42.2	13.3	16.7	27.8	100.0
Captan for fruit-rot control	39.2	12.4	15.5	32.9	100.0
Change from Hill planting to matted row	81.7	1.2	12.2	4.9	100.0
Chemical weed control	42.4	7.1	14.1	36.4	100.0
Picking carts	72.8	3.3	15.2	8.7	100.0
Virus-free certified plants	50.6	7.6	24.1	17.7	100.0
Average: All Innovations	54.8	7.5	16.3	21.4	100.0

Note: A null hypothesis of no difference in class proportions between innovations for each type of information source was used. The chi-square value of 89.652 is significant at the .001 level.

TABLE X

Z VALUES FOR THE DIFFERENTIAL USE OF MASS INFORMATION SOURCES BETWEEN INNOVATIONS AT THE AWARENESS STAGE IN THE ADOPTION PROCESS RELEVANT TO THE CLASSIFICATION OF SOURCES BY NATURE OF THE ACTIVITY

	Innovation				
Innovation	Captan for fruit-rot control	Change from hill planting to matted row	Chemical weed control	Picking carts	Virus-free certified plants
Soil analysis for nematode control	0.192	3.361**	1.462	2.674**	1.344
Captan for fruit-rot control		3.111**	1.250	2.433*	1.132
Change from Hill planting to matted row			-2.235*	-1.214	-2.424*
Chemical weed control				1.267	-0.139
Picking carts					-1.433

* Significant at the .05 level. ** Significant at the .01 level.

TABLE XI

Z VALUES FOR THE DIFFERENTIAL USE OF INSTRUCTIONAL GROUP INFORMATION SOURCES BETWEEN INNOVATIONS AT THE AWARENESS STAGE IN THE ADOPTION PROCESS RELEVANT TO THE CLASSIFICATION OF SOURCES BY NATURE OF THE ACTIVITY

	Innovation				
Innovation	Captan for fruit-rot control	Change from hill planting to matted row	Chemical weed control	Picking carts	Virus-free certified plants
Soil analysis for nematode control	2.575**	0.920	0.520	0.295	-1.310
Captan for fruit-rot control		0.613	0.280	0.060	-1.522
Change from Hill planting to matted row			-0.405	-0.613	-2.434*
Chemical weed control				-0.225	-1.828
Picking carts					-1.575

* Significant at the .05 level. ** Significant at the .01 level.

TABLE XII

Z VALUES FOR THE DIFFERENTIAL USE OF INDIVIDUAL INSTRUCTIONAL INFORMATION SOURCES BETWEEN INNOVATIONS AT THE AWARENESS STAGE IN THE ADOPTION PROCESS RELEVANT TO THE CLASSIFICATION OF SOURCES BY NATURE OF THE ACTIVITY

	Innovation				
Innovation	Captan for fruit-rot control	Change from hill planting to matted row	Chemical weed control	Picking carts	Virus-free certified plants
Soil analysis for nematode control	-0.787	4.499**	-1.313	3.550**	1.709
Captan for fruit-rot control		5.118**	-0.522	4.159**	2.500
Change from Hill planting to matted row			-5.181*	-1.055	-2.943**
Chemical weed control				4.687**	2.997**
Picking carts					-1.919

* Significant at the .05 level. ** Significant at the .01 level.

THE USE OF INDIVIDUAL SOURCES OF INFORMATION

The predominance of personal sources is again illustrated in that neighbours and friends were used most by all adopter categories. Laggards and late majority respondents were the greatest users of such sources while the least use was made by early adopter-innovators. (Table XIII).

The District Horticulturist ranks second in importance for all categories except laggards, with the greatest use by early adopter-innovators (20.5 per cent) and the early and late majority respondents reported approximately the same level of use (16 to 17 per cent). This source ranked sixth for laggards, averaging only 6.4 per cent. Salesmen, dealers and custom operators ranked second in importance for laggards, sixth for late majority, fifth for early majority, but was not included in the first six sources for early adopter-innovator respondents.

Foreign travel was third in importance for early adopter-innovators with 11.0 per cent. Some of these respondents indicated frequent contact with other growers and attended growers' short courses in Washington State. A few of them visited experiment stations and had contacts with government horticulturists or other specialists in the United States. As Rogers[9] has indicated, the early adopter-innovators exhibited more cosmopolite behaviour in their use of sources of information. Foreign travel was not included in the first six sources for any other adopter category.

Observation on other farms was third in importance for laggards (10.6 per cent) and early majority (8.1 per cent), but fourth for late majority respondents (10.4 per cent) and early adopter-innovators (9.5 per cent). Meetings of farm organizations together with short courses sponsored by the Lower Mainland Horticulture Improvement Association were of decreasing importance between late majority and early adopter-innovators ranking third for late majority, fourth for early majority and fifth for early adopter-innovators. This source ranked sixth for laggards and accounted for the same percentage use as for early adopter-innovators (8.5 per cent).

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[9] Rogers, op. cit., p. 180.

TABLE XIII
THE SIX MOST FREQUENTLY USED SOURCES OF INFORMATION BY ADOPTER CATEGORY

Adopter Category			
Laggard	Late Majority	Early Majority	Early Adopter-Innovator
Neighbours and friends (28.7)	Neighbours and friends (32.5	Neighbours and friends (25.1)	Neighbours and friends (23.5)
Salesmen, dealers and custom operators (11.7)	District Horticulturist (17.1)	District Horticulturist (15.9)	District Horticulturist (20.5)
Observation on other farms (10.6)	Agricultural meetings and short courses sponsored by the L.M.H.I.A., or other Agricultural meetings (13.9)	Observation on other farms (8.1)	Foreign travel (11.0)
Personal Experience (8.5)	Observation on other farms (10.4)	Agricultural meetings and short courses sponsored by the L.M.H.I.A., or other Agricultural meetings (9.6)	Observation on other farms (9.5)
Agricultural meetings and short courses sponsored by the L.M.H.I.A., or other Agricultural meetings (8.5)	Personal Experience (5.4)	Salesmen and dealers (7.4)	Agricultural meetings and short courses sponsored by the L.M.H.I.A., or other Agricultural meetings (8.5)
District Horticulturist (6.4)	Salesmen and dealers (4.6)	Manager of employees of the processing plant (7.2)	Personal Experience (5.5)

Personal experience was the sixth source for early adopter-innovators and it ranked fifth for late majority and fourth for laggards, but was not included for early majority respondents for whom the manager or employees of the processing plant occupied the sixth position. The latter source was not included for any other adopter category.

SUMMARY

When using either classification scheme, the personal sources of information were used to the greatest extent by the growers. Ranking second in use were government sources when the system of classification by origin was used while individual instructional sources were second when classified by nature of the activity. Under this dual classification system the District Horticulturist and the District Agriculturist are shown to be the second ranking source of information. In view of this, it is necessary to take a more searching look at the nature and extent of the contacts between these representatives of the Extension service and the strawberry growers.

CHAPTER THREE

EXTENSION CONTACTS

The principal function of the Agricultural Extension Service is the diffusion of information to farmers in such a way as to encourage the progressive modernization of agriculture. In the Fraser Valley this function is performed by local District Agriculturists who are concerned with general farming and by District Horticulturists who specialize in matters related to such crops as strawberries. Both of these agents may have contact with and be available to the strawberry growers for advice and assistance. As noted earlier, these District Agents are the second most important source of information reported by the sample of strawberry growers; consequently, it is useful to analyze in detail the nature and extent of the contacts between the agents and their clientele.

In diffusing information to farmers, extension agents use a variety of different media and forms of contact. Rogers and Capener[1] have classified these various contacts into two principal categories: personal or face-to-face communication and impersonal contacts. Personal contact includes farm visits by the agent, visits to the agent's office by the farmer, attendance at meetings and field days, and telephone conversations. Impersonal contact includes mass media such as circular letters, publications, mailed announcements, bulletins, newspaper articles, radio, and television programs.

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[1] Everett M. Rogers and Harold R. Capener. The County Extension Agent and His Constituents. Ohio Agricultural Experiment Station, Wooster, Ohio, June, 1960. (Research Bulletin 858), p. 5.

THE DISTRICT HORTICULTURIST

Personal contacts with the District Horticulturist averaged 54 per cent with a maximum of 63 per cent for telephone contact. There were more users than non-users for both telephone (63 per cent) and farm visits (56 per cent), but less for visits to the agent's office (43 per cent). (Table XIV).

TABLE XIV

PERCENTAGE DISTRIBUTION BY TYPE OF CONTACT FOR DISTRICT HORTICULTURIST AND OTHER AGRICULTURAL AGENTS

Type of Contact	District Horticulturist		Other Agents	
	Use of Contact %	Non-Use %	Use of Contact %	Non-Use %
Visit to office of agent	43.0	57.0	14.0	86.0
Telephone calls to agent	63.0	37.0	31.0	69.0
Farm visits by the agent	56.0	44.0	37.0	63.0
Circular letters, bulletins, pamphlets from agent	82.0	18.0	38.0	62.0
Radio announcements by agent	27.0	73.0	43.0	57.0
Television programs by agent	11.0	89.0	44.0	56.0
Newspaper articles by the agent	64.0	36.0	69.0	31.0

The detailed distribution for intensity of use[2] is given in Appendix I. For purposes of discussion, the "seldom-occasionally" response range is considered as low intensity and the "frequently-very frequently" response range as high intensity.

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[2] The possible responses for each individual contact channel ranged between "seldom", "occasionally", "frequently" and "very frequently".

Of the 63 per cent who used telephone contact, 36 reported low intensity use compared to 27 at the high level. For farm visits, 44 per cent indicated low level use as against 12 per cent at the high level. Thirty-three per cent were low level and 10 per cent were at the high level for visits to the office of the District Horticulturist. There was twice as much higher intensity telephone contact as for the other personal contact channels.

The level of personal contact obtained in this study exceeds any other observed in the literature for the same three channels. The 54 per cent average is more than twice the calculated average from data reported by Rogers and Capener[3] for Ohio farmers (25 per cent), Rogers and Havens[4] for farm housewives (20 per cent), and by Verner and Gubbels[5] for dairymen in the Fraser Valley of British Columbia (22.3 per cent).

Impersonal contacts for the four channels studied averaged 46 per cent, with the highest percentage use (82 per cent) for mail received and read. There were more users than non-users for mail and newspaper articles (64 per cent), but fewer users for radio (27 per cent) and television (11 per cent). With respect to mail, 22 per cent reported low compared to 60 per cent reporting high intensity use. Some 22 per cent reported high intensity use of newspaper articles while 42 per cent were at the low level. The lowest intensity use was reported for radio and television where high intensity use did not exceed 4 per cent for either while 8 and 23 per cent reported low level usage of television and radio respectively.

The overall average for impersonal contacts in this study is approximately 10 per cent lower than the three studies cited previously. Except for the study by Rogers and Havens, the average is lower in each instance. Verner and Gubbels did not include television among the contacts studied and the Ohio studies used a combined percentage figure for "T.V. or radio". By using a similar combination here the resulting average of 57 per cent exceeds the average in Verner and Gubbels. While the level of usage for newspaper articles and mail is higher in comparison with the other studies, the use of T.V. or radio is consistently lower.

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[3] Rogers and Capener, op. cit., p. 11.

[4] E.M. Rogers and A.E. Havens, Extension Contact of Ohio Farm Housewives, Ohio Agricultural Experiment Station, Wooster, Ohio, November, 1961, (Research Bulletin 890), p. 4.

[5] Verner and Gubbels, op. cit., p. 22.

The extension contact scale established by Rogers and Capener[6] was used to measure overall contact between the respondent and the District Horticulturist. In this study the scale is slightly modified since T.V. is isolated from radio; also, there is no score for meetings, field days and demonstrations--a single item in the Rogers and Capener scale--since the relevant question in the interview schedule was not specific to the District Horticulturist only.

Eleven per cent of the respondents had no contact whatsoever with the District Horticulturist during 1966. Sixteen per cent of the respondents had a median score of 4 contact channels and the average was 3.4. Considering only those who had contact with the District Horticulturist, the average was 3.9. (Table XV).

TABLE XV

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY EXTENSION CONTACT SCORE WITH DISTRICT HORTICULTURIST

Extension Contact Score	Respondents %
0	11.0
1	7.0
2	16.0
3	14.0
4*	16.0
5	21.0
6	13.0
7	2.0
Total	100.0

* Median

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[6] Rogers and Capener, op. cit., p. 14.

OTHER AGENTS

The average percentage use of personal contacts with other extension agents (27 per cent) was about half that reported for the District Horticulturist. This was not unexpected since the sample consisted of strawberry growers, the innovations studied related to the strawberry industry, and the District Horticulturist is the specialist in this area.

Impersonal contact was about the same level as that reported for the District Horticulturist. The average number of users for all channels was 48.5 per cent. Percentages for individual channel usage were higher for radio and T.V. and for newspaper articles but almost one-third less for mail. Forty-eight per cent of the respondents reported participation in local meetings, field days or demonstrations.

The percentage distribution for an extended type of contact scale which takes into consideration the reported frequency or intensity of use of each contact channel is given in Table XVI. It is a combined score for all 7 channel contacts relevant to both the District Horticulturist and other agents, and has a score range of 0 to 56. Five per cent of the respondents had no contact with an agricultural agent during 1966. The median score category of 11 to 20 included 38 per cent of the respondents and 25 per cent scored more than 20.

TABLE XVI

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY AN EXTENDED EXTENSION CONTACT SCORE, DISTRICT HORTICULTURIST AND OTHER AGENTS

Extension Contact Score	% of Respondents
0	5.0
Less than 5	16.0
5 - 10	16.0
11 - 20*	38.0
21 - 40	23.0
More than 40	2.0
Total	100.0

* Median

EXTENSION CONTACT AND FARMER CHARACTERISTICS

Socio-economic characteristics of farmers have been found to be related to both the kind and amount of extension contact.[7] Among the strawberry growers in the sample, personal contacts were related to the size of the farm operation and to gross agricultural income while there was a similar but less consistent trend with respect to impersonal contacts.

Operators of larger farms with higher agricultural incomes and higher levels of social participation had more frequent personal contact by telephone and farm visits with the District Horticulturist and with other agents. Participation in agricultural adult education and the educational level of the farm wife showed a statistically significant relationship to contact by telephone. Those farmers who participated more in agricultural adult education were more likely to seek information from the agent either by telephone or by office visits. The use of all three personal contact channels was significantly related to adoption with the highest correlations for telephone (r = .58) and farm visits (r = .51) by the District Horticulturist. The educational level both of the operator and of his wife were significantly related to contact by telephone and to farm visits by other agents.

The interrelationship of specific contact channels within the personal category clearly indicate a tendency for respondents to seek information on a multi-channel basis. Significant positive intercorrelations included office visits and telephone contact with the District Horticulturist (r = .53) and farm visits and telephone contact with the District Horticulturist (r = .60). The trend also extended to contact with other agents as illustrated by the relationship between telephone contact and farm visits (r = .72).

Operators of larger farms with higher levels of social participation and more education used mail contact more than did others. The educational level of the farm wife was significant for the use of this channel in contacts with other agents. Participants in agricultural adult education were more likely to use all impersonal contact channels, except television, in contacts with the District Horticulturist. Multi-channel impersonal contact usage is evident from the relationship between mail and newspaper articles for the District Horticulturist (r = .51) and for other agents (r = .32).

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[7] Isaac A. Akinbode and M.J. Dorling, Farmer Contacts with District Agriculturists in British Columbia, Vancouver: Faculty of Education, University of British Columbia, 1969. (Special Study #4).

Partial correlation coefficients indicated a significant relationship between adoption and two types of impersonal contact with both the District Horticulturist and other agents. These were mail contact (r = .45; r = .35) and newspaper articles (r = .40; r = .28), and a significant relationship only with the District Horticulturist through radio (r = .35).

Multi-channel contact is also evident from the relationship between individual channels of different types. Combined measurements of personal and impersonal contact give significantly high correlations relevant to the District Horticulturist and other agents (r = .72) and for the District Horticulturist separately (r = .60).

In this study, the highest statistically significant correlations related to adoption are obtained with reference to extension contact score. Some other high correlation coefficients which are significant at the .01 level are shown in Table XVII. While it is necessary to be cautious about inferring a causal

TABLE XVII

SIGNIFICANT CORRELATION COEFFICIENTS BETWEEN EXTENSION CONTACT SCORE AND ADOPTION SCORE

Type of Contact	Coefficient
Extension contact with the District Horticulturist (Rogers and Capener Scale)	0.64
Extended extension contact scale; all agents	0.58
Personal contact with the District Horticulturist	0.58
Impersonal contact with the District Horticulturist	0.53
Personal contact; District Horticulturist and other agents	0.51
Impersonal contact; District Horticulturist and other agents	0.55

relationship due to the ex post facto nature of the correlation design, the consistency observed does emphasize the potential significance of extension contacts. Contact with the District Horticulturist as measured by the Rogers and Havens Contact Scale gives the strongest combined relationship. Personal contact with the agent most closely involved with the relevant practices becomes evident when consideration is given to farm visits and telephone contact. These two contact channels indicate a close personal relationship between the agent and his clientele since such contacts occur frequently only when the agent-client relationship is above that for the farm population as a whole. In the interviews, the operators of larger farms emphasized subtley that the agent comes to the farm rather than their going to his office.

EXTENSION CONTACT BY ADOPTER CATEGORY

Extension contact varies both in kind and amount from one adopter category to another. Detailed bivariate analysis between the use of individual personal contact channels and adopter categories supports the implications of the partial correlation analysis. Twenty-two per cent of the respondents reported no personal contact with the District Horticulturist during 1966. In terms of adopter categories, 17 per cent of that group were laggard or late majority respondents, 4 per cent were early majority, and one was in the innovator-early adopter category. Of the 27 respondents who reported high intensity use of telephone contact, none were laggards, 5 were late majority and 11 each were in the early majority and innovator-early adopter categories. Of the 12 who reported high intensity farm visit contacts, none were laggards, 1 was late majority, 5 were early majority and 6 were in the innovator-early adopter category. Nine respondents reported high intensity contact by both telephone and farm visits; none were laggards, 1 was early majority, 3 were late majority and 5 were in the innovator-early adopter category.

The analysis of impersonal contacts showed a similar relationship with adoption. There were no early adopter-innovators or early majority respondents among those who reported no impersonal contact with the District Horticulturist. This group included 6 (46.2 per cent) of the late majority and 7 (53.9 per cent) of the laggard respondents. (Table XVIII).

TABLE XVIII

STATISTICALLY SIGNIFICANT CHI-SQUARE VALUES FOR TWO AND FOUR ADOPTER CATEGORIES BY TYPE OF EXTENSION CONTACT

Socio-Economic Characteristic	Chi-square value Using 2 Adopter Categories	 Using 4 Adopter Categories
Visits to Office of D.H.	64.74*	79.32*
Telephone Calls to D.H.	84.59*	92.22*
Visits to Farm by D.H.	107.53*	143.41*
Mail from D.H.	94.43*	92.72*
Radio announcements by D.H.	64.58*	55.43*
Television announcements by D.H.		16.37*
Newspaper articles by D.H.	34.56*	37.23*
Attendance at meetings, field days	36.30*	22.62*
Attendance at meetings of L.M.H.I.A.		36.05*
Extension contact with the D.H. (Rogers and Havens Scale)	104.98*	112.63*
Combined extension contacts with the D.H. and other agents	101.90*	41.16*

* Significant at the .01 level.

When using two adopter categories, higher values were obtained for farm visits, extension contact scale, and all contacts. With four adopter categories the higher values were obtained also for farm visits and extension contact scale, but mail from the District Horticulturist ranked third. The variants in adopter category by type of contact are examined more fully below.

Extension Contact Through Office Visits

This contact channel had the lowest chi-square value for the personal contact types and there was a marked difference between the high percentage of respondents in the low adopter categories within the non-contact group. There were no laggards in the high frequency contact group, and only 10 per cent of the late majority compared to 27 and 32 per cent for no contact and low frequency contact groups. The trend continued at the early majority level but was less marked with 45 per cent having no contact and 30 per cent with high frequency contact. At the early adopter-innovator level, 8.8 per cent reported no contact and 60 per cent reported a high frequency of contact through office visits.

Extension Contact by Telephone

At the upper adoption level, 32.4 per cent of the respondents reported no contact while 81.4 per cent reported a high frequency of contact by telephone. There were no laggards among respondents reporting high frequency contact.

Extension Contact by Farm Visits

The significance of the highest chi-square value for all personal contact channels is illustrated clearly at three of the four adopter category levels. There were no laggards in the high frequency contact group and the only exception to the trend was at the early majority level. Combined percentages at the lower adoption level decreased from 72.7 per cent for no contact to 8.3 per cent with a high frequency of contact. At the upper adoption level the percentage increased from 27.3 per cent for no contact to 91.7 per cent for high frequency contact.

Extension Contact by Mail

A positive relationship between adoption and extension contact by mail was confined to the use or non-use of that channel. The trend in percentage distributions between adopter categories is similar to that obtained for personal contact channels, but it did not extend clearly through both the low and high frequency contact levels and the percentage differences were extremely small, except at the early majority level.

Extension Contact Through Radio Announcements

The typical relationship was evident, except again at the early majority level where the percentage of low frequency contact respondents (43.8 per cent) was still higher than the high frequency contact group (33.3 per cent). The usual trend did not occur until the early adopter-innovator level with a range of 8.8 per cent for no contact, 17.9 per cent for low frequency contact, and 46.7 per cent for high frequency contact. There were no laggards in the high frequency contact group.

Extension Contact Through Television

Because of the small number of respondents who reported contact by this channel, only two categories were possible--users and non-users. The trend was similar to that observed for radio contact, with larger percentages of respondents among non-users at all levels of adoption between laggards and early majority. A positive relationship with adoption becomes evident only at the early adopter-innovator level. The relatively weaker relationship with this variable is illustrated by a small chi-square value which was significant only in the analysis using four adopter categories.

Extension Contact Through Newspaper Articles

A positive relationship between adoption and use of this contact channel is clearly evident only for the extreme adopter categories, and is only significant between users and non-users at the early majority level.

Attendance at Local Meetings, Field Days and Demonstrations

Except for the laggard category, the positive relationship between adoption and attendance at local meetings, field days and demonstrations was evident between those reporting no attendance and those reporting attendance at more than one event. The relationship was less consistent at various levels of adoption performance for those reporting single attendance.

The chi-square value for attendance at meetings of the L.M.H.I.A. was significant in terms of four adopter categories and except at the early adopter-innovator level, there was a positive relationship with adoption. The number of respondents at the lower adoption level decreased with an increase in attendance. The percentage of laggards reporting no attendance (16.7 per cent) was higher than that for single attendance (11.1 per cent) or for those reporting attendance at more than one meeting (3.2 per cent).

Combined percentages emphasize the relationship. Respondents classified as early majority or early adopter-innovator constituted 46.6 per cent of the group not attending any meetings compared to 66.7 per cent for single attendance and 83.7 per cent in the group reporting multiple attendance.

Extension Contact Scales

The positive relationship between extension contact and adoption is illustrated by the high chi-square value for two adopter categories. The typical percentage distributions show the greatest change at extreme ends of the adopter categories with a 36.1 per cent decrease for an increasing number of contacts at the laggard end, and a 30.6 per cent increase for an increasing number of contacts at the early adopter-innovator level. There was a 61 per cent directional change in percentage distributions for combined categories at the upper and lower levels of adoption performance. The relationship between adoption and the extended extension contact score for the District Horticulturist and other agents was similar but less marked as indicated by the smaller chi-square values.

SUMMARY

The agricultural extension agents in the Fraser Valley are important sources of information for strawberry growers. The level of contact between agent and farmer is exceptionally high in this study compared with others but the principal forms of high intensity contact are impersonal in nature. As would be expected with this particular population, contacts with the District Horticulturist were higher than those with any other representative of the extension service.

The adoption of innovations was higher among those with greater personal contacts with the agricultural agent and high intensity contact with the District Horticulturist was associated with high adoption performance consistently. Larger farm operators, those with greater income, and farmers with high participation scores had greater personal contact with the agent.

The diffusion of agricultural information through impersonal contacts is less effective in achieving agricultural change than is personal contact. Thus, efforts to accelerate the rate of change can be more effectively directed toward an increase in personal contacts between the agricultural agent and his client rather than through impersonal channels.

CHAPTER FOUR

INTERPERSONAL COMMUNICATION

Farmers use personal sources of information more than any other and this operates largely through interpersonal contacts. The relative importance of informal personal information sources at various stages in the adoption process has been discussed previously with respect to the population of this study. Lionberger, in his comparison of information sources, points out that mass media--radio, television, and to some extent periodicals--have an inherent disadvantage for evaluation and decision as they are not accessible for subsequent reference and review, do not lend themselves to two-way communication and cannot relate to the specific situation of the individual farmers. He states:[1]

> The next best thing to actual trial on their own farms is advice of another farmer who is known and trusted and who has had the required experience.

Research has shown that information seeking among farmers is by no means random and that it is possible to identify network patterns or groups. The degree of exposure to outside influence is a noticeable characteristic of those sought as sources of information. Those whose advice is sought most frequently by others are "opinion leaders", which demonstrates the existence of "sources of influence which are not inherently relevant to the subject matter at hand."[2] These social contact networks were of considerable importance in the diffusion of information, even when highly competent, scientific agencies were involved. The interaction possible among opinion leaders themselves could involve transmission in more than two steps. Thus, the role of interpersonal communication extends beyond information and influence for a particular innovation to the determination of general response behaviour with reference to outside sources of information and influence. Investigation over a wider population confirmed the importance of networks of "discussion and advisorship" as a crucial determinant of innovativeness.[3]

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[1] Herbert F. Lionberger, Adoption of New Ideas and Practices, Ames, Iowa: Iowa State University Press, 1960, p. 33.

Since most interpersonal contacts among farmers occur largely within the immediate locality group, it would seem that neighbourhood interaction leading to the development of mutual expectations and norms results in a lack of independence in individual behaviour. From their study conducted in low, medium and high adoption areas, Marsh and Coleman[4] found support for a hypothesis that adoption is partly explained as a function of locality which determines the particular "attitudinal-expectation framework".

The influence of neighbourhood or locality group is also reflected in patterns of interpersonal communication. Lionberger[5] found significant differences in the extent to which farmers named opinion leaders as sources of information within a particular neighbourhood. The effect was not only to localize contacts, but also to influence the evaluation process.

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[2] Herbert Menzel and Elihu Katz. "Social Relations and Innovation in the Medical Profession: The Epidemiology of a New Drug". The Public Opinion Quarterly, 19:337-352, (Winter 1955-56), p. 337.

[3] James Coleman, Elihu Katz, and Herbert Menzel. "The Diffusion of an Innovation Among Physicians". Sociometry, 20:253-270, (December, 1957), p. 258.

[4] C. Paul Marsh and A. Lee Coleman, "The Relation of Neighbourhood of Residence to Adoption of Recommended Farm Practices", Rural Sociology, 19:385-389, (December, 1954), p. 385.

[5] Herbert F. Lionberger, "Neighbourhoods as a Factor in the Diffusion of Farm Information in a Northeast Missouri Farming Community", Rural Sociology, 19:377-384, (December, 1954).

Differences in the types of interpersonal network dyads for sources of information have also been observed between neighbourhoods.[6] Similarly, there may be different values placed upon varying kinds of information sources between neighbourhood and non-neighbourhood farmers.[7] Leuthold[8] observed differences in communication media contact between tight-knit German-Dutch and Ukranian communities.

In this chapter, interpersonal communication among the strawberry growers is studied in terms of the distribution of sociometric choices indicated by the respondents. Growers were asked about other growers from whom they "always" sought advice in arriving at a decision concerning whether or not to try an innovation. In addition, the respondent was asked to indicate the three persons whom he visited socially most frequently. Ideally, all the growers should be interviewed to achieve a complete picture but the limitation inherent in trying to map the interpersonal network in a random sample only is partly compensated for by the fact that this sample consisted of more than 50 per cent of the known growers.

Completion in identifying the interpersonal communication patterns was realized by interviewing all the growers resident in a single locality group which is identified hereinafter as a cluster. As previously indicated, this cluster contained a total of 46 growers, among whom were 22 in the random sample. Where responses on interpersonal communication indicated growers who were not in the sample, their names and addresses were obtained so that it was possible to include them in the sociogram, thus completing the sociometric presentation.

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[6] Herbert F. Lionberger and Rex R. Campbell, The Potential of Inter-Personal Communicative Networks for Message Transfer from Outside Information Sources: A Study of Two Missouri Communities, University of Missouri, College of Agriculture, Agricultural Experiment Station, Columbia, Missouri, September, 1963, (Bulletin 842).

[7] Herbert F. Lionberger and C. Milton Coughenour, Social Structure and Diffusion of Farm Information, University of Missouri, College of Agriculture, Agricultural Experiment Station, April, 1957, (R.B. 631).

[8] F.O. Leuthold, op. cit., pp. 169-170.

Various aspects of the interpersonal network were analyzed including the distribution of opinion leaders identified by the concentration of sociometric responses. The communication behaviour of the individual respondent was observed both within and between ethnic groupings, and with reference to the degree of linkage between locality groups. Adoption performance was used as a basis for the analysis of existing relationships. In the case of the non-randomly selected growers in the cluster who were interviewed, the classification into adopter categories was on the basis of their adoption score as with all growers, and the chi-square test indicated that the distribution of scores obtained represented a normal distribution.

The sociometric technique was used for this analysis as the resulting sociogram enables the observer to determine the relative status of individual members, to identify leaders, and to obtain some indication of existing groups and cleavages within the social unit being investigated.[9]

SOCIOMETRIC BEHAVIOUR FOR ADVISORY DYADS

The sociometric patterns plotted in Figure 1 illustrate the selection of other growers as a source of advice and identify those individuals who were most influential in the decision-making process. The respondents exercised considerable caution in identifying other growers. While in many instances a grower would acknowledge a general tendency to discuss various aspects of strawberry cultivation with another, he would either not name anyone as being relevant to the question, or he would name only a single individual. In general, there was little doubt as to who was considered worthy of being mentioned as a constant source of advice.

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[9] Urie Bronfenbrenner, The Measurement of Sociometric Status, Structure and Development, Beacon House, 1945, (Sociometry Monographs No. 6), p. 36.

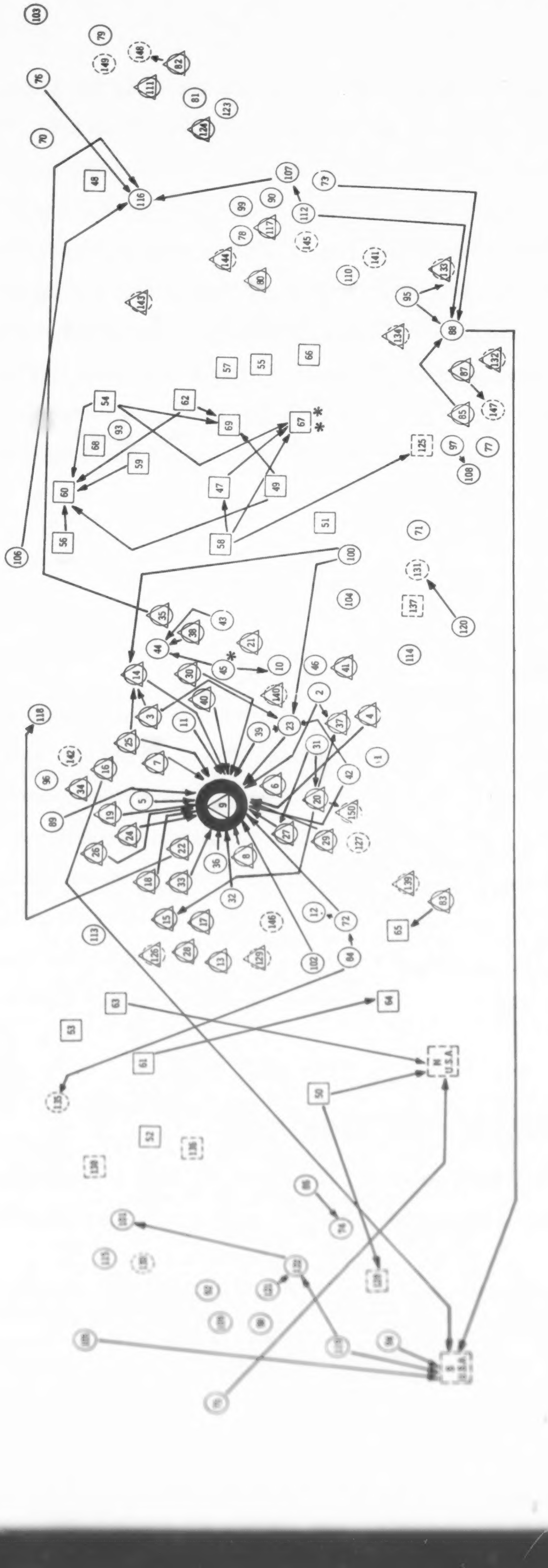
9
N U.S.A.
S U.S.A.
116
88
60
67
69
54
62
14
23
44
* *
*

FIGURE I. THE DISTRIBUTION OF SOCIOMETRIC CHOICES IN THE SEARCH FOR ADVICE.

KEY:
MENONITE
"OTHER"
JAPANESE
GROWERS WHO WERE NOT INTERVIEWED

RESPONDENT NAME FOREIGN GROWER (NOT PLOTTED) AS A SOURCE OF ADVICE.

This cautious attitude is further illustrated by the extent to which other individuals were named; 45 per cent of all growers interviewed did not name another individual in an advisory relationship. This behaviour is partly explained by a certain degree of scepticism among growers as to the reliability of advice obtained from other farmers. While such an attitude was detected in widely separated localities, it was clearly evident only among the non-Japanese growers. The relevant responses which suggest this attitude of scepticism included such statements as: "Farmers around here don't like to tell anything they have found out;" "I go to them but they don't give me any....they won't tell you anything...;" or, "Strawberry growers are the worst liars in the world."

THE SAMPLE

Adopter Category and "Sociometric Tendency"

Differences among adopter categories relative to whether or not the respondent named another grower as a source of advice are statistically significant at the .05 level. The lowest percentage of individuals naming another grower was among the laggards (41.7 per cent) and this differed only slightly from the early majority (46.5 per cent) or the early adopter-innovators (47.1 per cent). A larger number (60.7 per cent) of late majority respondents supplied a name. Average percentages indicated a slight tendency for later adopters to name someone with whom they have an "advisor-advisee" relationship. (Table XIX).

Sociometric Status and Adopter Category

A sociometric score was computed for each individual named as the source of advice in an advisory dyad.[10] This score represents the total number

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[10] A dyadic relation is defined as "the interaction which occurs between the two partners in a social stimulus situation." S. Ivan Nye and Felix M. Berado ed. The Emerging Conceptual Frameworks in Family Analysis, New York: The Macmillan Company, 1966 , p. 108.

TABLE XIX

RESPONSE OF GROWERS TO NAMING ANOTHER GROWER AS A SOURCE OF ADVICE

Adopter Category	Named Someone No.	Named Someone %	Did not name Someone No.	Did not name Someone %
Laggard	5	41.7	7	58.3
Late Majority	17	60.7	11	39.3
Early Majority	20	46.5	23	53.5
Early Adopter-Innovator	8	47.1	9	52.9
Total of Numbers	50		50	
		(Total = 100)		

Note: None of the percentage differences were statistically significant at the .05 level of significance. See: Vernon Davies, A Rapid Method for Determining the Significance of the Difference between Two Percentages, Pullman, Washington: The Author, no date.

of times an individual was named by other growers. Twenty per cent of the growers were named as a source of advice by other growers with 13 per cent being named once and 7 per cent named more than once. This identification of the individual from whom advice was sought suggests that those named performed the role of legitimator although they probably also served in an innovator-communicator role. The specific reference to advice is a clear case of "...where a conceptual distinction has been made between becoming informed and being convinced."[11]

Differences in sociometric score between adopter categories were negligible--particularly for those receiving a single choice. Those receiving a single choice included one grower classified as a laggard (8.3 per cent of all laggards) and two classified as early adopter-innovators (11.1 per cent). The largest group receiving a single choice was found among the early majority (18.6 per cent).

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[11] Herbert F. Lionberger and H.C. Chang, Comparative Characteristics of Special Functionaries in the Acceptance of Agricultural Innovations in Two Missouri Communities, Ozark and Prairie, University of Missouri, College of Agriculture, Agricultural Experiment Station, Columbia, Missouri, 1965, (Research Bulletin 885), p. 6.

Differences were more pronounced among individuals with a sociometric score of two or more. This group included 17.6 per cent of the early adopter-innovator category, 4.7 per cent of the early majority, 7.1 per cent of the late majority, and not a single laggard. (Table XX).

TABLE XX

SOCIOMETRIC SCORE OF GROWERS AS A [illegible]CE OF ADVICE BY ADOPTER CATEGORY

Adopter Category	Growers with no score No.	%	Score = 1 No.	%	Score = 2 or more No.	%
Laggard	11	91.7	1	8.3	0	0.0
Late majority	24	85.7	2	7.1	2	7.1
Early majority	33	76.7	8	18.6	2	4.7
Early Adopter-Innovator	12	70.6	2	11.8	3	17.6
Total of Numbers	80		13		7	

Note: The chi-square value of 32.84 is significant at the .01 level.

Advisory Dyads and Adopter Categories

Since individuals named as a source of advice were not necessarily from the same adopter category as the grower by whom they were named, the dyadic relationships were examined in terms of the interaction within and between adopter categories. Dyads were considered as being upward, downward or across depending on whether this sociometric choice was extended to an individual classified in a higher, lower or the same adopter category. Most of the sociometric choices (92.7 per cent) extended either upward or across. More than twice as many choices were upward (65.9 per cent) as were across (26.8 per cent). Upward choices for each adopter category were distributed as follows: early majority (37.5 per cent), late majority (84.2 per cent), and laggards (75 per cent). Those growers in the early adopter-innovator category directed all of their choices to other growers in the same adopter category. Downward choices were found only among early majority respondents who also directed the largest number of choices (43.8 per cent) towards others in the same adopter category. The chi-square value (significant at the .001 level) indicates clearly that the selection of an individual as a source of advice was a deliberate choice rather than random selection. (Table XXI).

TABLE XXI

PERCENTAGE DISTRIBUTION OF SOCIOMETRIC CHOICES BETWEEN RESPONDENTS BY ADOPTER CATEGORY

Individuals naming others as a source of advice	Individuals Named as a Source of Advice				
	Adopter Category				
	Laggard %	Late Majority %	Early Majority %	Early Adopter-Innovator %	Total %
Laggard	25.0	25.0	0.0	50.0	100.0
Late majority	0.0	15.8	36.8	47.4	100.0
Early majority	0.0	18.7	43.8	37.5	100.0
Early Adopter-Innovator	0.0	0.0	0.0	100.0	100.0

Note: The chi-square test was used to test the null hypothesis of no significant difference in the distribution of dyadic relationships among adopter categories. The chi-square value of 219.79 is significant at the .001 level.

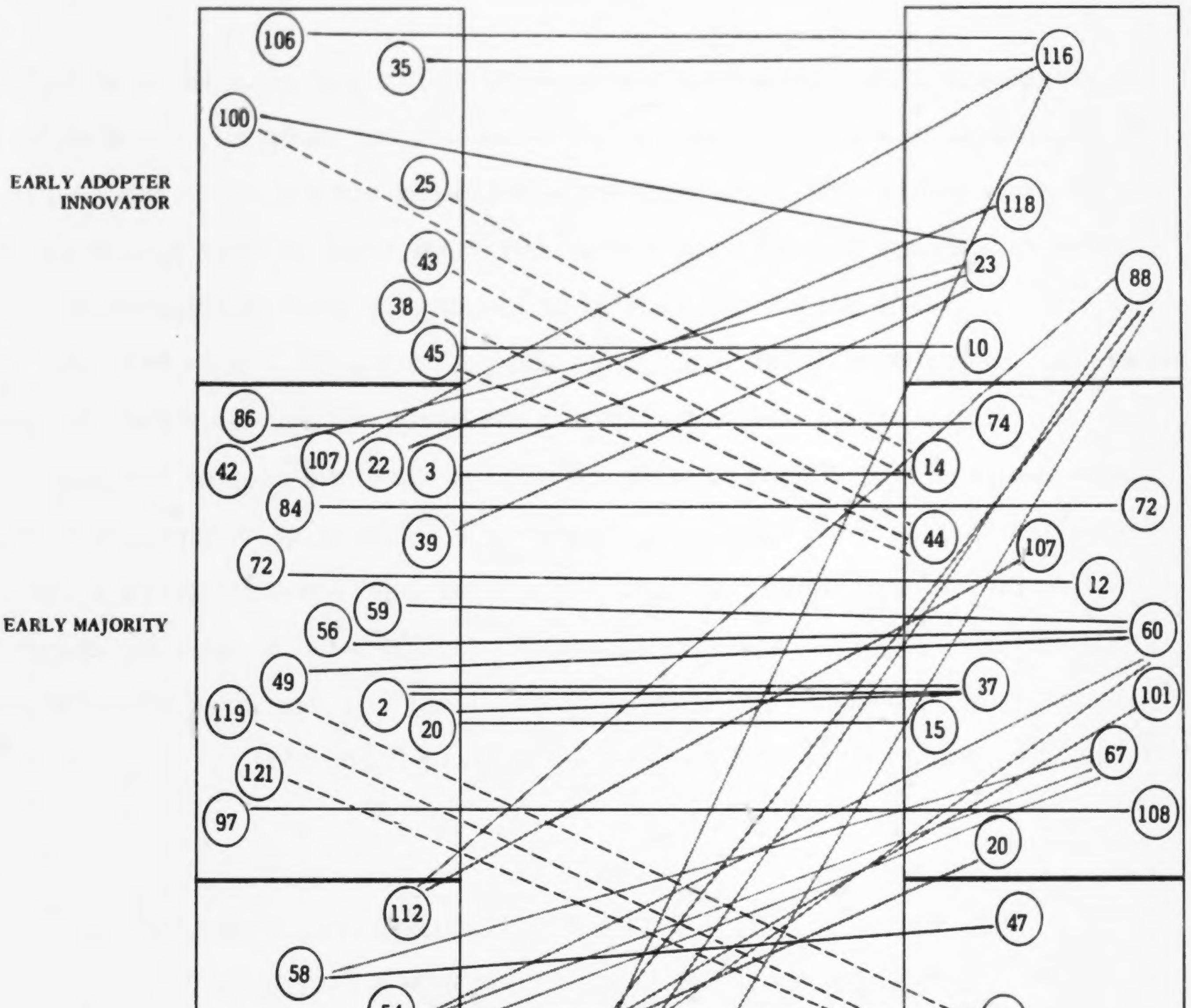
EARLY ADOPTER INNOVATOR
EARLY MAJORITY
LATE MAJORITY
LAGGARD
106
35
100
25
43
38
45
86
42
107
22
3
84
39
72
59
56
49
2
119
20
121
97
112
58
54
47
31
122
62
85
95
76
61
73
83
116
118
23
88
10
74
14
72
44
107
12
60
37
101
15
67
108
20
47
69
27
122
65
64

FIGURE II. THE DISTRIBUTION OF SOCIOMETRIC CHOICES FOR ADVICE IN RELATION TO ADOPTER CATEGORY. KEY:

——— UPWARD SOCIOMETRIC CHOICE

– – – – – DOWNWARD SOCIOMETRIC CHOICE

——— SOCIOMETRIC CHOICE BETWEEN RESPONDENTS IN THE SAME ADOPTER CATEGORY

2

Sociometric Patterns and Ethnic Origin

Menonite and Japanese respondents were concentrated primarily in two locality groups while the other growers were fairly widely distributed throughout the sample area except for that particular area in which the Japanese growers were concentrated. Seventy-six per cent of the Menonites were in the general area in which the cluster was located. Similarly, 63 per cent of the Japanese growers were found in a single area. Sociometric choices were strongly concentrated within each of the three ethnic groups, particularly among the Menonite and Japanese respondents.

Sociometric interaction in the advisor-advisee dyadic relationships indicates that ethnicity was an appreciable barrier to interpersonal communication between members of different ethnic groups. The distribution of dyads among Japanese respondents suggests that they operate in a closed sociometric system as not a single Japanese respondent named a non-Japanese grower in the 13 dyads reported within the random sample.

Among Menonites, six of a total of eight choices were directed to other Menonites, one to a Japanese, and the remaining choice to one of the "other" group of respondents. Dyads originating from the "other" group of respondents occur on a much broader basis but again the majority of choices was confined largely to non-Menonite and non-Japanese individuals. Of 21 choices, 15 (71.4 per cent) were directed to such growers and 6 (28.6 per cent) to Menonites. Not a single Japanese grower was mentioned, thus indicating further the isolation of Japanese respondents with respect to the dissemination of information through personal contacts. (Table XXII).

THE CLUSTER

Since the sample was drawn from a large area by random selection, the normal patterns of interpersonal contact within a given locality were not complete. Consequently, a cluster of growers in a single locality group were

TABLE XXII

PERCENTAGE DISTRIBUTION OF SOCIOMETRIC CHOICES BETWEEN RESPONDENTS BY ETHNIC ORIGIN

Individuals naming others as a source of advice	Individuals named as a source of advice			
	Ethnic Origin			
	Japanese %	Menonite %	Others %	Total %
Japanese	100.0	0.0	0.0	100.0
Menonite	12.5	75.0	12.5	100.0
Others	0.0	28.6	71.4	100.0

Note: The chi-square test was used to test the null hypothesis of no significant difference in the distribution of dyadic relationships among ethnic groups. The chi-square value of 345.28 is significant at the .001 level.

interviewed to provide a more complete analysis of sociometric relationships. This cluster contained a total of 46 growers, of whom 22 had been drawn in the original random sample so that an additional 24 interviews were conducted.

Adopter Category and Sociometric Tendency

Among the growers in the cluster, 32 (69.6 per cent) named another grower as a source of advice. Within the 4 adopter categories, the relevant percentages naming another were laggards (66.7 per cent), late majority (71.4 per cent), early majority (64.7 per cent) and early adopter-innovators (75 per cent). Combined percentages for early and late adopters averaged 69.9 per cent and 69.1 per cent respectively. Thus, the slight tendency evident in the random sample toward a greater likelihood of response from later adopters was not borne out within the cluster.

Sociometric Status and Adopter Category

Nine respondents (19.6 per cent) were chosen in the advisory dyads. Of the total choices originating within the cluster, 22 (55 per cent) were for respondent No. 9 whose sociometric score was 25 since he received 3 choices from individuals not in the cluster. The importance of this individual within a sample area is consistent with other studies. Hoffer and Gibson[12] reported indices for individuals ranging between .23 and .70 for different communities. Leuthold[13] reported a single farmer in one community receiving 28 per cent of all choices for advisory dyads from a total of 136 respondents.

Of the 9 respondents chosen, one was classed as late majority, three as early adopter-innovator and five (55.6 per cent) as early majority. Both for the random sample and for the cluster, therefore, the majority of individuals chosen were from the category early majority. The 5 individuals who received more than one choice included 2 early adopter-innovator and 3 early majority respondents.

Dyadic Relationships and Adopter Category

The choices made by respondents within the cluster were similar to those found in the random sample in terms of the distribution of those selected among the adopter categories. Of the total number of choices, 61.1 per cent were upward to a higher category. Among the laggards who named an individual from whom advice was sought all such persons named were in a higher adopter category while this pattern was followed by 90.9 per cent of the late majority and by 71.4 per cent of the early majority. Of the total choices made 27.8 per cent were across and 11.1 per cent were directed to an individual in a lower adopter category. In the case of the early adopter-innovator category, 55.5 per cent of the choices were across to individuals at the same adopter level while the remaining choices were downward to early majority respondents.

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[12] C.R. Hoffer and D.L. Gibson, The Community Situation as it Affects Agricultural Extension Work, East Lansing: Michigan State College, Agricultural Experiment Station, October, 1941 , pp. 10-32.

[13] Leuthold, op. cit., p. 91.

Sociometric Patterns and Ethnic Origin

Since the cluster of growers did not include any Japanese respondents, the analysis of ethnic interaction is confined to Menonites and "other" respondents. Of the 23 choices originating from Menonite respondents, 20 (87 per cent) extended to Menonites and 3 (13 per cent) to non-Menonites. Of the 13 choices reported by non-Menonites, 9 (69.2 per cent) extended to Menonites and 4 (30.8 per cent) to growers in their same group. This does not follow the pattern reported previously for the random sample, but grower No. 9 who was a Menonite received 7 of the 9 choices extended to that ethnic group.

ALL RESPONDENTS

By combining the sociometric contacts observed among respondents in the sample with those found in the cluster, a more detailed map of interpersonal contacts emerges and more specific generalizations about the nature of the contacts are evident.

Adopter Category and Sociometric Tendency

Fifty per cent of the growers classified in the laggard or early majority categories named another grower as a source of advice. More of the late majority (62.2 per cent) than of the early adopter-innovator category (56.5 per cent) did so. When considered as a whole, the cluster and the sample combined showed that more growers named another than was found in the random sample along. (Tables XIX and XXIII).

Individuals who received a high sociometric score either did not name any grower as a source of advice or tended to name a grower in the United States. Grower No. 9, with a sociometric score of 25, did not name anyone. (Figure I).

The general responses of many high status individuals indicated that they were aware of being opinion leaders in the locality although some individuals may have over-rated their status as a source of advice as distinct from a mere

TABLE XXIII

RESPONSE OF GROWERS TO NAMING ANOTHER GROWER AS A SOURCE OF ADVICE BY ALL RESPONDENTS

Adopter Category	Named Someone		Did not Name Someone	
	No.	%	No.	%
Laggard	7	50.0	7	50.0
Late Majority	23	62.2	14	37.8
Early Majority	25	50.0	25	50.0
Early adopter-innovator	13	56.5	10	43.5
Total of Numbers	68		56 (Total = 124)	

Note: None of the percentage differences were statistically significant at the .05 level of significance. See: Davies, op. cit.

source of information. For example, neither grower 79 who said "many come to me and ask me" nor 92--"lots of them come to me"--were named by any of the respondents interviewed.

Sociometric Status and Adopter Category

The 152 growers studied identified 35 (23 per cent) opinion leaders and, of these, 25 were among the respondents interviewed. Among the 35 influentials, 21 (60 per cent) received a single choice, 9 (25.7 per cent) received 2 or 3, and 5 (14.3 per cent) received more than 3 choices. The average for each influential was 2.6 choices but the average among individuals receiving 2 or more choices was 4.7.

The 68 respondents, from whom the dyadic relationships originate in the "seeker-sought"[14] context, provided a total of 92 instances of opinion leadership selection, as plotted in Figure I. Seventy-six (82.6 per cent) are relevant to the 25 interviewed, while the remaining 16 were not interviewed.

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[14] Lionberger and Chang, op. cit. refer to the "seeker-sought information-seeking relationship" as the "elemental social structure" which facilitates interpersonal communication.

Sociometric status is clearly weighted in favour of higher adoption performance for respondents in both the sample and the cluster. The percentage of individuals receiving at least one sociometric choice varied between adopter categories with 7.1 per cent among the laggards, 13.5 per cent in the late majority, 26.0 per cent among early majority and 26.1 per cent early adopter-innovators. Combined average percentages were 10.3 per cent for late adopters compared to 26.1 per cent for early adopters.

Dyadic Relationships and Adopter Category

The analysis for all respondents in terms of adopter category includes 72 dyadic interactions among those interviewed out of a total of 92 sociometric choices recorded in the study. Forty-seven of the 72 choices are plotted in Figure II. The remaining 25 relate to respondent 9 who received 27.2 per cent of all choices recorded. (Figure III).

More than one-half (55.6 per cent) of the 72 choices were directed upwards in terms of adoption performance, with 33.3 per cent directed to growers on the same adoption level and 11.1 per cent directed downward towards a grower in a lower adopter category. This suggests important differences in sociometric behaviour between individuals in search of information who may choose others one or more adopter categories above their own level while those from whom advice is sought tend to be in a contiguous category. Of the 40 upward choices, 22 (55 per cent) were directed upward by one adopter category, 13 (32.5 per cent) by two and 5 (12.5 per cent) by three adopter categories.

Lionberger and Campbell[15] concluded that the choice of personal referents as sources of information were not random in that there was "a general inclination for likes to choose likes". The present study suggests that the general tendency is to seek individuals as close as possible in adoption performance. Thus, those from whom they seek advice are generally better farmers, but not too much so. On the other hand, downward sociometric choices did not extend beyond a single adoption category.

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[15] Lionberger and Campbell, op. cit., p. 20.

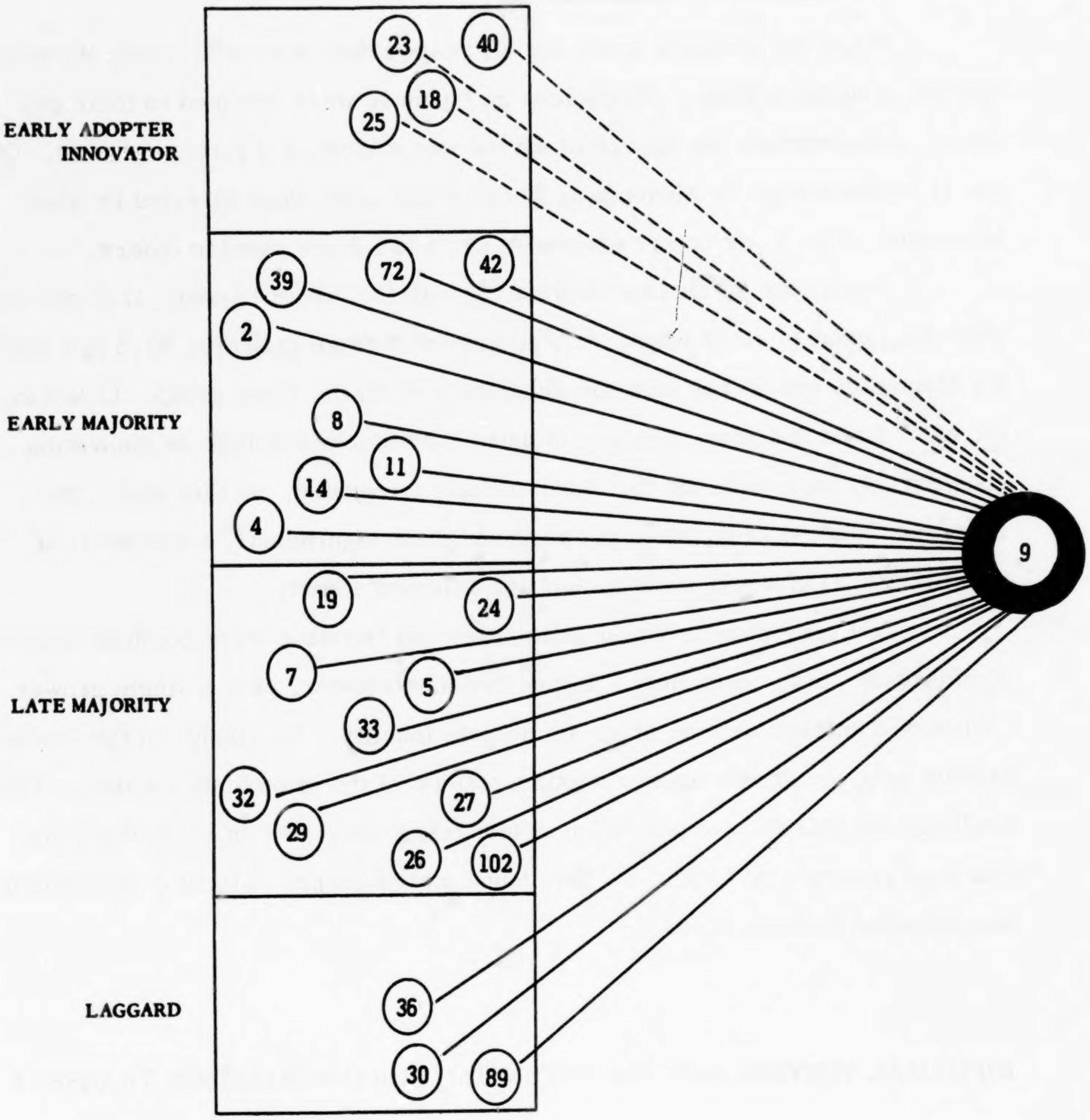
EARLY ADOPTER
INNOVATOR
EARLY MAJORITY
LATE MAJORITY
LAGGARD
23
40
18
25
39
72
42
2
8
11
14
4
19
24
7
5
33
32
27
29
26
102
36
30
89
9

FIGURE III. ILLUSTRATION OF THE SOCIOMETRIC IMPORTANCE OF RESPONDENT NO. 9

KEY: ——— UPWARD SOCIOMETRIC CHOICE

- - - - - SOCIOMETRIC CHOICE BETWEEN RESPONDENTS IN THE SAME ADOPTER CATEGORY

Sociometric Patterns and Ethnic Origin

When the advisory dyads for all respondents are considered, the ethnic barrier is again evident. All choices by Japanese were confined to their own ethnic group whether the source of advice was a local or a foreign grower. Of the 31 choices made by Menonites, 21 (67.7 per cent) were directed to other Menonites, 2 (6.5 per cent) to Japanese and 8 (25.8 per cent) to others.

Among the 40 choices originating with the "other" group, 12.5 per cent were for Japanese all of whom were prominent foreign growers, 32.5 per cent for Menonites and 55 per cent for individuals from the same group. Coleman, et. al.[16] found that more socially isolated individuals accepted an innovation considerably later than did the more socially integrated. In this study, the apparent isolation of Japanese growers and their significantly lower level of practice adoption would seem to support Coleman's study.

Advisory choices among Menonites and Japanese were confined almost wholly to the local community. In the Menonite cluster, only a single grower (35) named another outside of his immediate locality. Similarly, in the Japanese cluster only one grower named another outside of the immediate locality. This tendency towards the concentration of leadership selection on a locality basis was also reported by Leuthold[17] who found a high degree of local orientation in two different farming areas.

INFORMAL VISITING AND THE POTENTIAL FOR INFORMATION TRANSFER

The search for information and advice may or may not be a function of normal social relationships within a given locality group. In an effort to examine this question, the informal visiting patterns of the respondents were mapped. (Figure IV). Social visiting appeared to be concentrated within the local community and there was some tendency for sociometric choices in friendship dyads to concentrate on respondents identified as having higher sociometric scores resulting from advice dyads.

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[16] Coleman, Katz and Menzel, op. cit., p. 267.

[17] Leuthold, op. cit., p. 89.

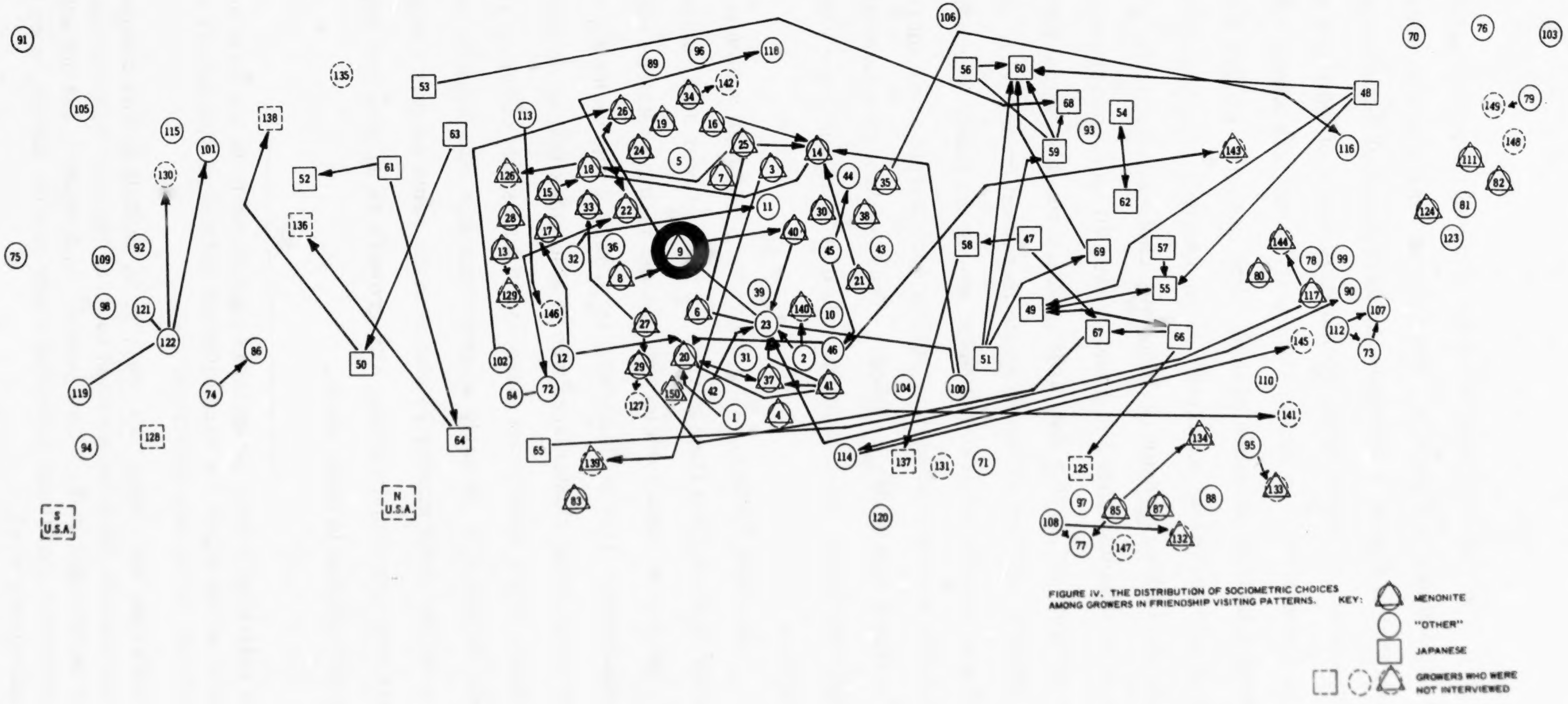
S U.S.A.
N U.S.A.
KEY:
MENONITE
"OTHER"
JAPANESE
GROWERS WHO WERE NOT INTERVIEWED

FIGURE IV. THE DISTRIBUTION OF SOCIOMETRIC CHOICES AMONG GROWERS IN FRIENDSHIP VISITING PATTERNS.

The super-imposition of the sociometric patterns plotted in Figures I and IV is shown in Figure V. The interpersonal contacts among growers illustrated in Figure V indicates the total potential for information transfer. Furthermore, changes in the sociometric status of individual growers relevant to the concentration of face-to-face activity for both advice and friendship visiting behaviour becomes evident. For example, grower 23 (Figure I) is an individual whose total potential[18] as an opinion leader has increased from a score of 4 to 8 as a result of friendship choices. Similarly, the score of grower 14 doubles from 3 to 6 and grower 20 increased from 1 to 6. A grower with no score for advice may acquire one through informal visiting contacts as, for example, grower 49 whose score increased from 0 to 3. Similarly, grower 55 who is an early adopter-innovator among the Japanese growers was not selected as a source of advice, but his sociometric score increased from 0 to 3 as a result of friendship choices. Thus, even if an individual is not named as a source of advice, he may fit the role of a "communicator"[19] through friendship contacts.

As noted earlier, some individuals with high sociometric scores for advisory dyads did not themselves name any grower as a source of advice and they appear to be equally selective in their visiting patterns where other growers are concerned. This is illustrated by grower 9 who visits 23, an obvious opinion leader in the local cluster area who is also classified as an early adopter-innovator. Some individuals make use of both kinds of dyadic relationships. Grower 40 named 9, an early adopter-innovator like himself, as a source of advice and he visits grower 23 who is in the same adopter category. The opinion leaders may use social visiting with growers as an informal way of keeping in touch with opinion in their areas.

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[18] An individual's total potential is considered to be his total score, on the basis of one score for each different individual who selects him in response to either of the two questions.

[19] Lionberger and Chang, op. cit., p. 6, include in this category "those who communicate farm information to other farmers quite devoid of the innovator and legitimator roles:" they provide "information and not advice." It is conceivable that these individuals may provide advice, even if not at the legitimising level.

LOCALITY GROUP AND DIFFUSION

The potential diffusion of information among locality groups is suggested by the linkages among growers in different areas which is illustrated in Figure V. Grower 117 visits 23, an opinion leader in his area, who had advice and visiting contacts with a number of other areas. Grower 88, an early adopter-innovator who has a high personal extension contact score with the District Horticulturist and foreign contacts, is a source of advice for growers in other areas, such as growers 112 and 73 who are in a visiting relationship with 107. The information acquired might then be checked with grower 116 to whom 107 turns for advice and from there spread to 106, 35 or 76 in different areas.

The Menonite grower 16 has contact with a foreign Japanese grower but through visiting grower 14, also a Menonite, the information can spread among Menonites in the immediate area as well as elsewhere to grower 100 with whom 14 has both a visiting and advisory relationship.

The widest ranging contacts among locality groups are observed in the friendship and advice contacts among Japanese growers. Grower 53 is linked to 68 who, in turn, is linked to 51 and 60 through grower 59. Grower 60 is linked with 54 thence through 67 to 65, 66, and 125 in different localities. Such a chain linkage among the growers suggests the inherent potential for information transfer but does not indicate that it actually occurs since this was not investigated.

Within a single locality group the linkage among growers is conspicuous. In the predominantly Menonite community, information can spread from grower 14 to 25 where there is a dual purpose dyadic contact, thence to growers 18 and 15 by friendship dyads, thereafter to 20, and eventually to numerous others. In a predominantly Japanese community, there is a complete linkage among all Japanese growers centering on growers 60 and 67.

In essence, then, the combined sociometric network for all responses illustrate with remarkable effectiveness the dyadic relationship which Rogers[20] suggests can be used as the "main unit of analysis in the diffusion process." In addition, further support is provided for the "multistep flow of communications"

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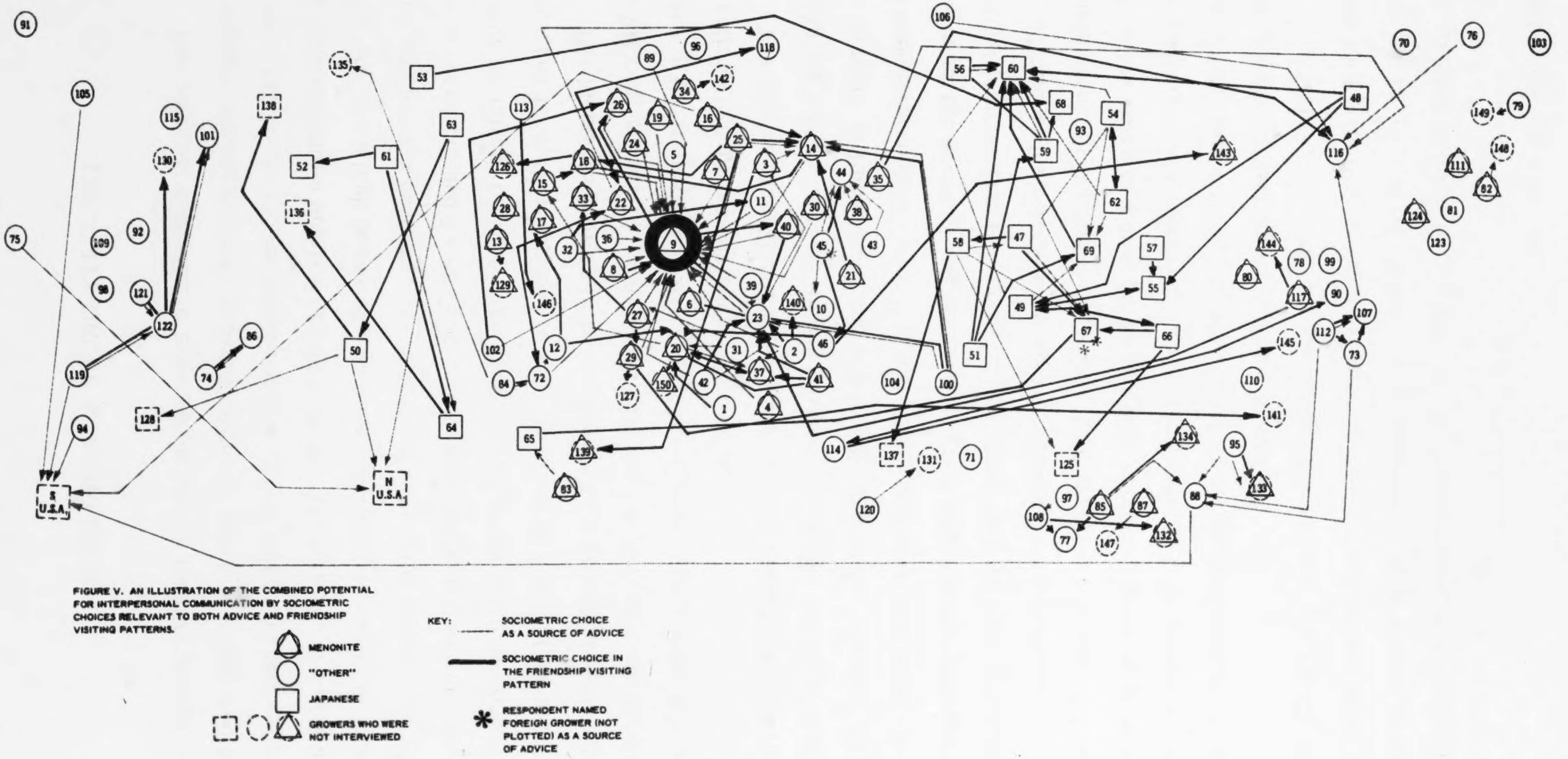
[20] Rogers, op. cit., p. 214.


KEY:
SOCIOMETRIC CHOICE AS A SOURCE OF ADVICE
SOCIOMETRIC CHOICE IN THE FRIENDSHIP VISITING PATTERN
MENONITE
"OTHER"
JAPANESE
GROWERS WHO WERE NOT INTERVIEWED
RESPONDENT NAMED FOREIGN GROWER (NOT PLOTTED) AS A SOURCE OF ADVICE
S U.S.A.
N U.S.A.
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105
115
101
130
75
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122
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FIGURE V. AN ILLUSTRATION OF THE COMBINED POTENTIAL FOR INTERPERSONAL COMMUNICATION BY SOCIOMETRIC CHOICES RELEVANT TO BOTH ADVICE AND FRIENDSHIP VISITING PATTERNS.

proposed by Menzel and Katz[21] as a revision to the earlier classic "two-step flow" in which they suggested a type of staircase ascendancy of opinion leadership in the search for advice within the interpersonal communication framework. Within the cluster of growers, 9 is a major channel of communication between the District Horticulturist, large commercial growers, and the local community. Two lower-level opinion leaders of note are growers 23 and 14, both of whom seek advice from 9 and subsequently are a source of information and advice for the numerous individuals who converge upon them in both types of dyadic relationships.

SOCIO-ECONOMIC CHARACTERISTICS AND OPINION LEADERSHIP

Studies in the adoption-diffusion context have long been concerned with the identification of opinion leaders who act as "energizers" in the diffusion process. The opinion leaders identified in this study tended to be above the average age of the population of growers. They had larger farms with a larger acreage in strawberries than was typical of the sample. Opinion leaders derived larger incomes from agriculture with a larger proportion of it from strawberries than was characteristic of the sample. They were not noticeably more experienced in strawberry culture but they exhibited a greater tendency to seek information through attendance at short courses, and demonstration meetings, and field days.

The influentials were clearly selective in their choice of sources of information with a preference for government sources, particularly with reference to the specific innovations studied. They had greater frequency of contacts with the District Horticulturist through all channels of communication and contact.

On the basis of adoption performance, 52.4 per cent of the opinion leaders were classified in the early majority category, 33.3 per cent in the early adopter-innovator category, and 14.3 per cent were classified late majority.

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[21] Menzel and Katz, op. cit., p. 343.

The relationship described here between practice adoption and opinion leadership is consistent with previous research. While opinion leaders are not necessarily innovators, "they are generally more innovative than their followers".[22] Lionberger and Chang[23] reported that legitimators were characterized by high technological competence, high information receptivity and information-seeking behaviour relative to adult classes, and the use of original sources including the county agent.

SUMMARY

The interpersonal communications network among strawberry growers spreads throughout the area. Growers are linked in advisory dyads and through friendship visitation. In both types of linkage the probability and potentiality for information transfer is extensive.

In the search for advice and legitimation, growers turn to others who are characterized by a higher level of practice adoption. Sixty-six per cent of the choices among respondents in the sample were directed upwards and 27 per cent were at the same adopter category level. Among laggards and late majority respondents, at least 75 per cent of all choices were directed upwards. Downward choices were particularly evident among early majority respondents but the percentage of such did not exceed those upward. The distribution of choices between adopter categories showed a statistically significant difference at the .001 level.

Interpersonal communication tended to be concentrated within ethnic groups although there was some slight inter-group contact. Japanese respondents did not name any individuals from other ethnic groups as a source of advice. Among Menonites and "others", some 70 per cent of all choices were directed to growers of the same ethnic origin. The Japanese growers were the most exclusive of the three ethnic groups studied and there was only a single instance of a

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[22] Rogers, op. cit., p. 243.

[23] Lionberger and Chang, op. cit., pp. 54-55.

Japanese grower being named by a non-Japanese respondent as a source of advice. The distribution of choices on the basis of ethnicity was statistically significant at the .001 level.

Although sociometric choices tended to be confined to members of a particular locality group, there were definite linkages among locality groups through both forms of contact studied. Consequently, the potential for the diffusion of information among growers is extensive.

Opinion leaders tended to be above the average for the population of growers in terms of age, size of farm, acreage in strawberries, total farm income and income from strawberries, level of social participation and contact with the District Horticulturist. More than one-half of them were classified as early majority, while one-third were early adopter-innovators.

CHAPTER FIVE

SUMMARY

This study has investigated the sources of information used by strawberry growers in the Fraser Valley of British Columbia. After examining information sources in general, particular attention is paid to relationships between the growers and the agricultural extension service and then to the interpersonal relationships among growers themselves.

SOURCES OF INFORMATION

The analysis of information sources in this study is based on a general pattern of use for all sources available to the respondent. Information sources were classified by Origin, with reference to the initial source, and by Nature of the Activity, with emphasis on the instructional process relevant to the learning experience. In the first instance, the four categories by origin were Personal, Government, Commercial and Farm Organization. The second classification by nature of the activity included Personal, Mass, Instructional Group, and Individual Instructional.

Personal sources of information which were the same in either classification, were used to the greatest extent. When classified by origin, government sources were second in importance, and commercial sources were used more than farm organization sources. At the awareness stage, government sources were generally used more frequently for the most recently introduced innovations while personal sources were of greater importance for longer established and less complex practices.

The relative position of both government and personal sources of information remains the same for all adopter categories. Personal sources were used most extensively by individuals at the lower adoption levels. Commercial sources were used particularly for those innovations involving the use of chemicals.

When information sources were classified by Nature of the Activity, the individual instructional type was second in importance to personal sources and were used to a greater extent at the upper adoption level. Instructional groups were used slightly more than mass sources. The chi-square test did not indicate significant differences between adopter categories for either classification.

Some differences in information-seeking behaviour become evident when consideration is given to the percentage use of individual sources of information. There was a high level of contact with the District Horticulturist and this source ranked second, for all adopter categories except laggards. Personal experience and observation on other farms was of decreasing importance with increasing adoption performance. The cosmopolitan behaviour of the early adopter-innovators was evident in the ranking of foreign travel as third in importance although it was not reported frequently by any other adopter category. Many of the progressive operators indicated that they maintained contact with foreign government agencies and private growers.

EXTENSION CONTACT AND ADOPTION

The level of extension contact reported in this study is exceptionally high when compared with other studies. More than half the respondents reported contact by telephone (63 per cent) or farm visits (56 per cent), but only 43 per cent had contact by office visits. High intensity contact (frequently or very frequently) ranged from 10 per cent (office visits) and 12 per cent (farm visits) to 27 per cent (telephone). Slightly less than one-half of the growers reported attendance at local meetings, field days or demonstrations.

Impersonal contact by mail (82 per cent) and newspaper articles (64 per cent) was higher than for any personal contact type, but less than one-third of the respondents reported contact by radio or television. The average level of use of impersonal sources (46 per cent) was less than for personal contacts (54 per cent). In addition, the general intensity of use was lower for impersonal sources than for personal contacts except for mail contact for which 60 per cent reported high intensity use. In comparison with other studies cited, the level of contact is higher for contact by mail and newspaper articles, but lower for T.V. and radio. Eleven respondents had no contact whatsoever with the District Horticulturist, while 5 reported no contact with any agent. The median number of contacts for the sample was 4 and the average was 3.4. Using an extended contact score including all agricultural agents, the median score category was 11 to 20 points and the range was 0 to 56.

The highest correlations with adoption were extension contact score. Personal contact showed a higher degree of association than impersonal contact and personal contact with the District Horticulturist was most important. High intensity contact with the District Horticulturist was consistently associated with high adoption performance.

Extension contact correlated positively and consistently with other socio-economic characteristics including farm size, income and social participation which were positively associated with adoption. Operators of larger farms had more frequent contact by telephone and more farm visits. Participation in agricultural adult education activities and the educational level of the farm wife correlated positively and significantly with contact by telephone. Also, those who participated in agricultural adult education activities were more likely to have personal contact with the District Horticulturist.

INTERPERSONAL COMMUNICATION

A major aspect of this study was the pattern of interpersonal communication among growers and its implication in the diffusion of innovations. Besides the 100 randomly selected respondents, 24 additional growers in a particular locality group were interviewed in order to examine more closely the interpersonal communication among growers.

Respondents were generally cautious in naming other growers as a source of advice with almost one-half of them failing to name anyone. Few of the individuals with high sociometric status named anyone and if they did so, they were likely to name a foreign grower of equally high status.

Most of those identified as influentials were found in the early majority category followed by early adopter-innovators and late majority. Dyadic relationships could be upward, downward or across in terms of the adopter category of the person named compared to that of the individual who made the choice. Sociometric choices were clearly in the direction of superior practice adoption as more than one-half (56 per cent) of the choices were upward, 33 per cent were across, and 11 per cent were downward.

The search for advice is definitely not a random phenomenon. While those seeking advice were likely to reach up beyond their own level of practice adoption, most choices included growers in the same adopter category or in one that was not too far removed. Downward choices never extended below a single adopter category.

Dyadic relationships were largely between individuals of the same ethnic group, particularly among Menonites and Japanese. In the latter case, not a single respondent named a non-Japanese grower. There were significant differences in the distribution of sociometric dyads both by adopter category and by ethnic origin.

Sociometric data for friendship visiting patterns indicated the existence of tight-knit community interpersonal networks, especially in the locality groups dominated by Menonite and Japanese growers. Such interpersonal dyads were confined largely to individuals in the same locality group.

When dyadic relationships for all responses were imposed on a single sociogram, the sociometric status of a number of individuals identified as sources of advice or "legitimators" increased considerably with the addition of friendship contacts. Furthermore, influentials not identified in the advice dyads became conspicuous in the friendship network. Since the area studied covered a number of locality groups, the potential for information transfer between different groups was illustrated. In addition, the dual-purpose sociogram provided evidence of the importance of the "two-step" and "multistep" flow of information within a community.

The socio-economic characteristics of the important opinion leaders indicated that they were above the average of the sample with respect to age, size of farm, acreage in strawberries, gross agricultural income, income from strawberries and the level of social participation, but they were not necessarily more experienced strawberry growers. A larger percentage were members of the L.M.H.I.A. and attended the annual short courses. Their choices of information sources were those closer to the origin of innovations, they were more likely to be in contact with foreign sources, and they had an exceptionally high level of contact with the District Horticulturist. In general, then, opinion leaders were the more progressive farmers of higher socio-economic status who were well informed on various aspects of strawberry cultivation and were opinion leaders at all levels of adoption performance.

IMPLICATIONS

The introduction of agricultural innovations leading to acceptance and adoption is accomplished most effectively through personal contacts. Impersonal sources of information may successfully diffuse information about an innovation but not in sufficient depth and intensity to lead to adoption. Thus, mass media are effective at the awareness stage but to move beyond awareness alone, farmers need specific help in learning how to incorporate the innovation into their own operations. This can be done successfully through individual contacts between the farmer and agricultural extension personnel by farm or office visits. Since district agents cannot adequately meet the needs of all of their farmer population by contact with each one individually, instructional group activities can be effective in extending the sphere of personal contact by the district agent. As the data here suggest, the extension service tends to concentrate on personal contacts with a few farmers and to use impersonal contacts for the majority. Consequently, a few farmers receive attention from the agent while too many receive too little. The balance can be re-adjusted by the use of group instruction and by making more use of local opinion leaders and influentials to increase the range of personal contacts.

The sociometric data reported here illustrate that influentials are found in all adopter categories and in each locality group. Furthermore, where different ethnic groups are found in a community, each such group must be considered as an independent entity rather than assuming that communication will flow through the community without regard for the influence exerted by ethnic group factors. In order to insure the flow of information throughout the farming community, the district agent will need to work within each ethnic and locality group independently.

In planning the systematic diffusion of information about innovations in agricultural technology, an extension agent needs to identify the various influential farmers in locality groups, ethnic groups, and adopter categories. By using these farmers as foci, information can be transmitted through the interpersonal network to all parts of the farming community. But, this channel alone is not sufficient although it does effectively support the more usual extension teaching procedures. By making the maximum effective use of all channels of communication, the adoption of innovations can be accelerated and involve increasing numbers of farmers not now contacted.

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APPENDIX I

INTERVIEW SCHEDULE

A STUDY OF THE ADOPTION OF INNOVATIONS AND THE RELEVANT INFLUENTIAL FACTORS AMONG STRAWBERRY GROWERS IN THE LOWER FRASER VALLEY

Respondent's Name ____

Address ____

____

Telephone Number ____________________

DATA CARD NO. 1

	Col.	Code
Respondent's Code No.	1,3	
	4	1

Record of Visits

Date	Time	Comments

Additional Notes:

Good ____________________,

I am a student from the University of British Columbia. We are making a survey of strawberry growers in the Lower Fraser Valley. It is felt that this industry is a very important one, and we hope that our findings would be of benefit to growers like yourself and to the industry as a whole.

I would be happy if you could assist me by answering a few questions about yourself and your farm.

Any information you give to me is STRICTLY CONFIDENTIAL, and will only be used for the purpose of this survey.

A. FIRST OF ALL, A FEW QUESTIONS ABOUT YOURSELF AND YOUR FAMILY.

1. What is your age?	Column	Code	Frequency
1. Under 20	5	1	0
2. 20 - 24		2	1
3. 25 - 34		3	9
4. 35 - 44		4	25
5. 45 - 54		5	29
6. 55 - 64		6	22
7. 65 or over		7	14
			100
2. What is your marital status?			
1. Single	6	1	9
2. Married		2	88
3. Widowed		3	3
4. Separated		4	0
5. Divorced		5	0
6. Not stated		6	0
			100
3. How many children do you have?			
1. None	7	1	14
2. 1 - 2		2	24
3. 3 - 4		3	36
4. 5 or more		4	26
			100

	Column	Code	Frequency
4. What was the highest year you completed in school?			
1. Less than 5	8	1	7
2. 5 - 8		2	46
3. 9 - 11		3	31
4. High school diploma (Grade 12)		4	7
5. Senior matriculation (Grade 13)		5	4
6. Some university		6	3
7. University degree		7	2
8. University graduate work		8	0
9. Graduate degree		9	0
			100
5. Have you taken any agriculture courses in high school?			
1. Yes	9	1	5
2. No		2	95
			100
6. Have you taken any agriculture courses at a vocational school?			
1. Yes	10	1	7
2. No		2	93
			100
7. Have you taken any agriculture courses for credit at university?			
1. Yes	11	1	2
2. No		2	98
			100
8. Have you taken any adult education courses in agriculture?			
1. Yes	12	1	50
2. No		2	50
			100
9. Have you taken any adult education courses in other subjects?			
1. Yes	13	1	29
2. No		2	71
			100

10. What was the highest year completed in school by your wife?

	Column	Code	Frequency
1. Less than 5	14	1	5
2. 5 - 8		2	35
3. 9 - 11		3	21
4. High school diploma (Grade 12)		4	15
5. Senior matriculation (Grade 13)		5	4
6. Some university		6	4
7. university degree		7	0
8. Not married/not applicable/ no response		8	16
			100

11. How many years have you been working in the agricultural industry?

	Column	Code	Frequency
1. Less than 5	15	1	3
2. 5 - 9		2	10
3. 10 - 19		3	21
4. 20 or more		4	66
			100

12. How many years have you been in the strawberry industry?

	Column	Code	Frequency
1. Less than 5	16	1	17
2. 5 - 9		2	15
3. 10 - 19		3	40
4. 20 or more		4	28
			100

13. How many years have you been on this present farm?

	Column	Code	Frequency
1. Less than 1	17	1	1
2. 2 - 4		2	7
3. 5 - 9		3	29
4. 10 - 19		4	38
5. 20 or more		5	25
			100

14. Where were you born?

	Column	Code	Frequency
1. British Isles	18	1	1
2. Germany, Austria		2	3
3. Netherlands		3	4
4. Denmark, Norway, Sweden		4	2
5. Ukraine, Russia		5	20

	Column	Code	Frequency
14. Where were you born? (cont'd)			
6. Japan		6	8
7. India		7	1
8. East Europe		8	11
9. U.S.A.		9	3
A. Canada		A	46
B. Other		B	1
			100
15. Since you were not born in Canada, when did you migrate to Canada?			
1. Does not apply	19	1	46
2. Immigration before 1945		2	31
3. 1945 to 1949		3	7
4. 1950 to 1954		4	6
5. 1955 to 1959		5	8
6. 1960 to 1964		6	2
7. After 1966		7	0
			100
16. Social Participation Score			
1. No score	20	1	16
2. 1 - 4		2	9
3. 5 - 14		3	42
4. 15 - 24		4	15
5. 25 - 49		5	14
6. 50 or more		6	3
7. No response		7	1
			100

SOCIAL PARTICIPATION SCORE

Score	1	2	3	4	5
Organization	Membership	Attendance	Contribution	Committee Membership	Offices Held
TOTALS	________	________	________	________	________

GRAND TOTAL = ____________ = Social Participation Score

B. MY NEXT SET OF QUESTIONS CONCERN YOUR FARM

17. What would you consider to be your major agricultural operation on this farm?

	Column	Code	Frequency
1. Small fruit production	21	1	80
2. Dairying		2	4
3. Cattle, hogs, sheep (excluding dairying)		3	2
4. Poultry		4	4
5. Vegetables		5	6
6. Potatoes		6	1
7. Tree fruits		7	0
8. Green-houses, cut flowers and nursery		8	2
9. Mixed		9	0
A. Seed Production		A	1
			100

18. What is your secondary agricultural activity?

0. Nil/ No response	22	0	46
1. Small fruit production		1	19
2. Dairying		2	5
3. Cattle, hogs, sheep (excluding dairying)		3	7
4. Poultry		4	5
5. Vegetables		5	10
6. Potatoes		6	5
7. Tree fruits		7	0
8. Green-houses, cut flowers and nursery		8	2
9. Mixed		9	1
			100

19. What is the total acreage you are farming at present?

1. Less than 3 acres	23	1	8
2. 3 to less than 5		2	9
3. 5 to less than 15		3	37
4. 15 to less than 30		4	22
5. 30 to less than 50		5	6
6. 50 to less than 80		6	5
7. 80 to less than 120		7	2
8. 120 to less than 180		8	2
9. 180 or more (acres)		9	9
			100

	Column	Code	Frequency
20. How many improved acres are devoted to strawberry production?			
1. Less than 3 acres	24	1	33
2. 3 to less than 5		2	17
3. 5 to less than 15		3	31
4. 15 to less than 30		4	6
5. 30 to less than 50		5	6
6. 50 to less than 80		6	4
7. 80 to less than 120		7	2
8. 120 to less than 180		8	1
9. 180 or more (acres)		9	0
			100
21. CALCULATE: Number of improved acres devoted to all other agricultural operations (i.e. beside strawberry production)			
1. Less than 3 acres	25	1	13
2. 3 to less than 5		2	16
3. 5 to less than 15		3	23
4. 15 to less than 30		4	15
5. 30 to less than 50		5	4
6. 50 to less than 80		6	4
7. 80 to less than 120		7	1
8. 120 to less than 180		8	3
9. 180 or more (acres)		9	6
A. Nil/No response		A	16
			100
22. What was the gross value of sales from all your agricultural operations last year?			
1. Under $3,000	26	1	18
2. $3,000 to $5,000		2	13
3. More than 5,000 to 10,000		3	20
4. More than 10,000 to 15,000		4	11
5. More than 15,000 to 25,000		5	11
6. More than 25,000 to 40,000		6	7
7. More than 40,000 to 55,000		7	1
8. More than 55,000 to 75,000		8	2
9. More than $75,000		9	13
A. Nil/No response		A	4
			100

	Column	Code	Frequency
23. What was the gross value of strawberries sold in 1966?			
1. Under $3,000	27	1	35
2. $3,000 to 5,000		2	20
3. More than 5,000 to 10,000		3	16
4. More than 10,000 to 15,000		4	6
5. More than 15,000 to 25,000		5	6
6. More than 25,000 to 40,000		6	2
7. More than 40,000 to 55,000		7	1
8. More than 55,000 to 75,000		8	5
9. More than $75,000		9	5
A. Nil/No response		A	4
			100
24. CALCULATE: Gross value of sales from all other agriculture operations (i.e. besides strawberries)			
1. Under $3,000	28	1	21
2. $3,000 to 5,000		2	10
3. More than 5,000 to 10,000		3	9
4. More than 10,000 to 15,000		4	10
5. More than 15,000 to 25,000		5	7
6. More than 25,000 to 40,000		6	5
7. More than 40,000 to 55,000		7	1
8. More than 55,000 to 75,000		8	3
9. More than 75,000		9	6
A. Nil/No response		A	28
			100
25. Do you:			
1. Own this farm	29	1	80
2. Own more than half and rent the remainder		2	13
3. Own less than half and rent the remainder		3	4
4. Rent it entirely		4	2
5. Manage this farm for someone else		5	1
			100

26. Did you work off your farm last year? If so, how did the amount of time spent working off your farm compare with the amount of time spent working on your farm?

		Column	Code	Frequency
1.	No off-farm work	30	1	60
2.	Less than 1/4 off-farm		2	8
3.	1/4 to less than 1/2 off-farm		3	4
4.	1/2 to less than 3/4 off-farm		4	6
5.	3/4 to less than full-time off-farm		5	6
6.	Full-time		6	16
				100

27. What was the largest number of pickers employed by you for harvesting strawberries at any one time during 1966?

1.	Less than 25	31	1	43
2.	25 to 50		2	15
3.	51 to 100		3	12
4.	101 to 200		4	10
5.	201 to 400		5	7
6.	401 to 600		6	1
7.	601 to 800		7	1
8.	801 to 1,000		8	0
9.	1,001 to 2,000		9	1
A.	Nil		A	10
				100

28. How much would you pay for this farm if you were buying it from someone else?

1.	Less than $5,000	32	1	1
2.	5,000 to less than $10,000		2	2
3.	10,000 to less than 30,000		3	36
4.	30,000 to less than 60,000		4	36
5.	60,000 to less than 90,000		5	5
6.	90,000 to less than 120,000		6	4
7.	120,000 to less than 150,000		7	1
8.	More than 150,000		8	14
9.	No response		9	1
				100

C. WHAT KIND OF CONTACTS HAVE YOU HAD WITH THE DISTRICT HORTICULTURIST DURING THE PAST YEAR?

				Never	Seldom	Occasionally	Frequently	Very frequently		Total
29.	1.	Visit to his office	Code:	1	2	3	4	5	33	
				57	20	13	4	6		100
		Other Agricultural		1	2	3	4	5	34	
		Agents		86	8	3	2	1		100
30.	2.	Telephone		1	2	3	4	5	35	
				37	20	16	15	12		100
		Other Agricultural		1	2	3	4	5	36	
		Agents		69	4	16	4	7		100
31.	3.	Visit to your farm		1	2	3	4	5	37	
				44	35	9	4	8		100
		Other Agricultural		1	2	3	4	5	38	
		Agents		64	15	6	5	10		100
32.	4.	Read Circular Letters,		1	2	3	4	5	39	
		Bulletins, etc.		18	3	19	19	41		100
		Other Agricultural		1	2	3	4	5	40	
		Agents		63	3	8	8	18		100
33.	5.	Listened to Radio		1	2	3	4	5	41	
		Announcements		73	9	14	2	2		100
		Other Agricultural		1	2	3	4	5	42	
		Agents		57	7	21	7	8		100
34.	6.	Looked at Television		1	2	3	4	5	43	
		Programmes		90	7	1	2	0		100
		Other Agricultural		1	2	3	4	5	44	
		Agents		57	7	28	7	1		100
35.	7.	Read Newspaper Articles		1	2	3	4	5	45	
				36	18	24	13	9		100
		Other Agricultural		1	2	3	4	5	46	
		Agents		31	9	20	23	17		100

	Column	Code	Frequency
36. Did you attend any meeting of the Lower Mainland Horticultural Improvement Association last year?			
1. No	47	1	60
2. One		2	9
3. 2 - 3		3	25
4. 4 - 5		4	2
5. 5 or more		5	4
			100
37. Have you attended any local meetings, field days or demonstrations sponsored by your District Horticulturist, D. A., or the Horticultural Association?			
1. No	48	1	52
2. One		2	17
3. 2 - 3		3	14
4. 4 - 5		4	17
			100
38. Did you attend the Growers' Short Course sponsored by the Horticultural Improvement Association last year?			
1. Did not attend	49	1	59
2. One day only		2	16
3. Both days		3	25
			100
39. Did you attend the Growers' Short Course this year?			
1. Did not attend	50	1	71
2. One day only		2	12
3. Both days		3	17
			100
40. Did you attend the Growers' short course in Washington last year?			
1. Yes	51	1	10
2. No		2	90
			100
41. This year? (Washington)			
1. Yes	52	1	6
2. No		2	94
			100

I have a few questions concerning how strawberry producers communicate with each other. I would like you to think carefully before answering them.

Also, I would like to assure you again that your answers will be treated with strict confidence.

42. I would like you to tell me the name(s) of any particular grower(s) whose advice you always seek before you decide whether or not to try a new practice on your farm.

	Column	Code	Frequency
1. No response	53	1	1
2. Can't think of any particular one		2	2
3. None of them		3	39
4. Name(s) given		4	48
			100

a) Name _________________________

Address _________________________

____

b) Name _________________________

Address _________________________

____

c) Name _________________________

Address _________________________

____

43. Who are the three (3) people with whom you visit socially most often?

	Column	Code	Frequency
1. No response	54	1	4
2. No one in particular		2	6
3. Name(s) given		3	90
			100

a) Name _________________________

Address _________________________

____

b) Name _________________________

Address _________________________

____

c) Name _________________________

Address _________________________

____

D. MY NEXT QUESTIONS ARE ABOUT THE SOURCES OF INFORMATION WHICH YOU USE CONCERNING NEW PRACTICES IN STRAWBERRY PRODUCTION

On this card which I am giving to you (hand respondent the card listing sources of information) there are a number of sources of information from which you may or may not learn about new and improved practices in strawberry production. I want you to give me the numbers or letters of the sources of information which apply to each question I shall ask you.

44. When you hear of a new or improved practice, to what source(s) do you go for further information (i.e. general, how to apply, etc.) before you apply it to your strawberry acreage?

(Names/Addresses for Personal Sources)

45. After you have gained enough information about a practice and have perhaps, tried it, which source(s) do you use in deciding whether or not to adopt (i.e. to continue using) the practice?

1. No response

(Names/Addresses for Personal Sources)

E. FINALLY, TO COMPLETE THIS INTERVIEW, I WILL ASK YOU SOME QUESTIONS ABOUT SPECIFIC PRACTICES WHICH APPLY TO STRAWBERRY PRODUCTION. THESE PRACTICES ARE LISTED ON THE OTHER SIDE OF THE CARD.

46. If you are aware of this practice, what progress have you made in regard to it?

1. Not aware
2. Awareness
3. Interest
4. Evaluation
5. Trial
6. Adoption
7. Discontinuance

47. In what year did you first become aware of this practice?

1955	1956	1957	1958	1959	1960	1961	1962	1963
1	2	3	4	5	6	7	8	9
1964	1965	1966	1967					
A	B	C	D					

48. From what source did you first learn of this practice? (Select from list of sources of information).

(1) ____________ (3) ____________ (5) ____________

____________ ____________ ____________

____________ ____________ ____________

(2) ____________ (4) ____________ (6) ____________

____________ ____________ ____________

____________ ____________ ____________

____________ ____________ ____________

(Names/Addresses for Personal Sources)

49. How did you feel about this practice when you first heard about it?

1. Was not interested)
2. Was interested but had no faith in it) Rejection to 60
3. Unsuitable for a strawberry producer like myself)
4. Applicable to my farm To 50)

	Soil Analysis for Nematode Control (1)			Spraying with Captan for Fruit-Rot Control (2)			Cultural operation change from "hill" to "matted row" (3)			Chemical weed control (4)			Use of Picking Carts (5)			Use of Virus-free certified plants (6)		
	Column	Code	Frequency	Column	Code	Frequency	Column	Code	Frequency	Column	Code	Frequency	Column	Code	Frequency	Column	Code	Frequency
46.	65	1	8	69	1	1	73	1	0	77	1	0	105	1	5	109	1	0
		2	2		2	0		2	0		2	1		2	5		2	0
		3	8		3	7		3	2		3	5		3	21		3	0
		4	23		4	2		4	4		4	12		4	27		4	0
		5	9		5	14		5	10		5	5		5	9		5	6
		6	50		6	76		6	83		6	76		6	33		6	94
			100			100			100			100			100			100

50. Reasons for feeling that this practice was applicable to your farm when you first heard about it.

	Yes	No
1. Your family was also interested	1	2
2. Good results obtained by other farmers who had tried it.	1	2
3. It was developed at the research station at Agassiz	1	2
4. Because it was recommended by the Department of Agriculture	1	2

51. After you heard about this practice, did you feel a need to seek more information?

1. Yes
2. No

52. From what source(s) did you seek this additional information?

(1) ____________________ (2) ____________________ (3) ____________________

____________________ ____________________ ____________________

____________________ ____________________ ____________________

(4) ____________________ (5) ____________________ (6) ____________________

____________________ ____________________ ____________________

____________________ ____________________ ____________________

(Names/Addresses for Personal Sources)

53. When did you first try this practice on your farm?

1. The same season) To 56
2. The next year)
3. About 2 years later) To 54 - 55
4. More than 2 years later)

54. What would you give as your reasons for taking 2 years or more before actually trying the practice after making the decision to try it?

a) General Reasons

1. Fear of damage to crop
2. Needed some more information
3. Unencouraging results by other farmers
4. Influenced by other farmers who decided not to try the new practice
5. Advice from members of my family
6. Department of Agriculture was not really giving much active encouragement at the time.

55. (b) Reasons relevant to the practice itself

Open ____

____

Classify:
1. Relative advantage
2. Compatibility
3. Complexity
4. Divisibility
5. Communicability
6. Situational factor
7. Cost

56. After this first trial, did you decide definitely to adopt or reject this practice in the future, or did you begin again to evaluate the suitability of this practice to your farm?

Open ____

Classify:
1. Evaluation To 57
2. Rejection To 60
3. Adoption: In what year ________ to 66

57. If you were undecided about the practice after your first trial, what would you give as your reasons for this uncertainty?

1. Evidence of crop damage
2. Availability of capital
3. Needed some more information
4. Unencouraging results by other farmers who tried this practice
5. My own results were not very convincing
6. Influence by other farmers who did not try the practice
7. Advice within my immediate family
8. Did not think that the Department of Agriculture was giving enough encouragement

58. Did you subsequently try this practice again, or did you decide some time afterwards to reject it completely without trial a second time? If you did try it again, when?

1. Subsequently rejected it To 59 - 60
2. Tried it again the next season) To 63
3. Tried it 2 years later) 2nd Trial)
4. Tried it more than 2 years later)) To 61-62-63

59. You said you rejected it subsequently - 58(1); what would you give as your reasons since you really did not reject the practice immediately after your first trial?

    1. Does not apply
    2. Unavailability of capital
    3. Felt I did not have enough information
    4. Unencouraging results by other farmers
    5. Influence by other farmers who did not try the practice
    6. Advice within my immediate family
    7. Did not think that the Department of Agriculture was giving enough active encouragement

60. After making the decision to reject the practice ______ 49 (1) - (2); ______; 56(2) ______; 58(1) ______; did you ever subsequently consider this practice again? If so, what kind of decision did you make, and how long after your earlier decision to reject?

    1. The same year
    2. Trial the next season — To 63
    3. Trial 2 years later)
    4. Trial more than 2 years later) — To 61 and 62
    5. Adoption — To 64
    6. Permanent rejection

61. You said that you subsequently tried this practice (again) ______ 58(3) - (4) ______; 60(3) - (4) ______ about 2 years later; what would you give as your reasons for the delay before this SECOND/FIRST trial?

    15(a) General Reasons:

    1. Fear/Evidence of crop damage
    2. Needed some more information
    3. Unencouraging results by other farmers
    4. Influenced by other farmers who decided not to try the new practice
    5. Advice within my immediate family
    6. Did not think that the Department of Agriculture was giving enough active encouragement.

62. Reasons relevant to the practice itself:

    Open: ______________________________

    Classify:
    1. Relative advantage
    2. Compatibility
    3. Complexity
    4. Divisibility
    5. Communicability
    6. Situational factor
    7. Cost (capital)

63. What decision did you make concerning the practice after this first/second trial?

1. Does not apply
2. Continued trial To 65
3. Rejection
4. Adoption (in what year) To 64

64. You decided to ADOPT the practice--56(3) _____; 60(5) _____; 63(4) _____ after the second trial; what reasons would you give for this decision?

1. Does not apply
2. Availability of capital
3. Very encouraging results after trial
4. Encouraging results of other farmers
5. Simply because many other farmers had adopted it
6. Advice within my immediate family
7. Active encouragement from Department of Agriculture

To 66

65. Since you never really decided to adopt the practice on your farm, what reasons would you give for your continued trial?

1. Not applicable
2. Cannot really give any reason
3. Limited evidence of economic profit
4. My neighbours were using the practice
5. The good farmers in the community were using the practice
6. Because it was recommended by the Department of Agriculture
7. Because I had already purchased equipment and materials
8. I felt that eventually I would get better results

66. After ADOPTION of this practice in ________(year), did you subsequently discontinue the practice? Of so, when?

1. Does not apply - still in adoption stage
2. Discontinuance in ________(year) .... To 67

67. What were the reasons for discontinuance?

Open: ____

____

Classify:
1. Relative advantage
2. Compatibility
3. Complexity
4. Communicability
5. Situational factor
6. Cost
7. Influence of neighbours and friends
8. Influence of family

APPENDIX II

PARTIAL CORRELATION COEFFICIENTS

PARTIAL CORRELATION COEFFICIENTS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
1. Adoption Score	1.00																																												
2. Age	-.31	1.00																																											
3. Number of Children	.15	.27	1.00																																									
4. Educational Level	.13	-.26	-.24	1.00																																							
5. Adult Education (Agr.)	.21	-.18	-.04	.15	1.00																																						
6. Adult Education (Gen.)	.14	-.16	.01	.15	-.20	1.00																																					
7. Wife's Education	.24	-.26	-.17	.39	.24	.15	1.00																																			
8. Years of farming	.04	.38	.25	-.29	.03	-.04	.06	1.00																																		
9. Years in strawberry	-.02	.28	.06	-.15	-.03	-.08	.01	.53	1.00																																
10. Years on present farm	.01	.17	.09	.04	.08	-.02	.27	.51	.45	1.00																														
11. Social Participation	.42	-.16	-.07	.31	.27	.10	.48	.21	.01	.28	1.00																													
12. Year of immigration	.02	-.46	-.02	-.09	.36	.02	-.09	-.45	-.49	-.59	-.32	1.00																												
13. Total acreage farmed	.35	-.19	.10	.24	.33	.12	.42	.19	.09	.38	.56	-.03	1.00																											
14. Acres in strawberry	.52	-.21	.09	.17	.29	.09	.42	.09	.04	.25	.47	-.06	.81	1.00																										
15. Acres - other agriculture	.33	-.14	.09	.34	.38	.14	.49	.20	.04	.40	.59	-.07	.94	.71	1.00																									
16. Gross sales - all agr.	.40	-.26	.02	.21	.38	.07	.47	.09	.03	.24	.59	.06	.85	.79	.78	1.00																								
17. Gross sales - strawberry	.46	-.13	.08	.26	.32	.15	.46	.14	.05	.25	.47	-.04	.78	.86	.69	.83	1.00																							
18. Gross sales - all other agr.	.49	-.23	.11	.21	.37	.02	.47	.12	.03	.27	.57	-.03	.78	.73	.75	.90	.66	1.00																						
19. Tenure	-.02	-.03	-.01	-.06	.10	-.03	.06	.08	.06	.08	.12	-.07	.29	.29	.37	.36	.20	.38	1.00																					
20. Off-farm work	.13	-.17	.12	-.03	-.10	.27	-.21	-.22	-.28	-.31	-.18	.24	-.27	.18	-.27	-.34	-.22	-.31	-.14	1.00																				
21. Labour employed	.43	-.13	.10	.19	.31	.16	.31	.05	.10	.22	.40	-.07	.75	.88	.71	.77	.85	.68	.26	-.16	1.00																			
22. Farm Value	.32	-.19	.11	.20	.27	.13	.45	.21	.12	.32	.55	-.10	.88	.77	.80	.86	.78	.80	.25	-.23	.74	1.00																		
23. Office Visits - Dis. Hort.	.33	-.09	.11	-.08	.27	.12	.05	.16	.10	.03	.13	-.06	.21	.28	.21	.18	.10	.22	.09	-.13	.22	.11	1.00																	
24. Office Visits - other agents	.27	-.30	.00	.13	.20	.32	.26	.04	.19	-.03	.34	.14	.30	.26	.27	.28	.22	.25	-.01	.03	.22	.29	.30	1.00																
25. Telephone - Dis. Hort.	.58	-.06	.24	.13	.36	.23	.31	.12	.06	.12	.39	-.06	.44	.57	.45	.41	.48	.56	.09	.10	.53	.36	.53	.27	1.00															
26. Telephone - other agents	.15	-.14	-.07	.36	.19	.24	.43	-.11	-.22	.11	.41	.04	.48	.41	.48	.46	.44	.39	.07	-.05	.40	.42	.07	.54	.33	1.00														
27. Farm Visits - Dis. Hort.	.51	.00	.17	.14	.18	.13	.26	.19	.15	.18	.37	-.06	.46	.52	.45	.40	.48	.49	.07	-.07	.48	.41	.44	.23	.60	.22	1.00													
28. Farm Visits - other agents	.23	-.15	-.01	.31	.22	.23	.45	-.01	-.08	.18	.49	-.04	.57	.49	.56	.55	.50	.44	.19	-.18	.49	.50	.13	.36	.36	.72	.36	1.00												
29. Circular letters - Dis. Hort.	.45	-.24	-.16	.33	.36	.15	.26	.01	-.04	.17	.55	-.10	.39	.43	.39	.37	.33	.33	.16	-.05	.31	.27	.27	.16	.49	.28	.32	.41	1.00											
30. Circular letters - Other agents	.35	-.05	.12	.20	.26	.10	.31	.19	-.11	.15	.48	.03	.46	.36	.48	.47	.39	.45	.10	-.11	.28	.39	.26	.39	.31	.54	.37	.57	.38	1.00										
31. Radio - Dis. Hort.	.35	-.07	.12	-.10	.27	.22	.11	-.02	-.06	.01	.15	.07	-.03	.12	.05	.05	.08	.12	.10	.13	.11	-.11	.20	.13	.25	.15	.26	.13	.15	.11	1.00									
32. Radio - Other agents	.36	.11	.15	-.14	.06	.11	-.11	.10	.04	.04	.10	-.02	.17	.24	.15	.17	.21	.15	.00	-.06	.31	.12	.21	.11	.25	.13	.39	.24	.17	.16	.41	1.00								
33. Television - Dis. Hort.	.08	.08	.23	.13	.14	.03	.03	.14	.19	.11	.14	.13	.12	.17	.27	.13	.13	.26	.09	.05	.22	.12	.29	.04	.30	-.02	.32	.08	.21	.20	.09	-.05	1.00							
34. Television - Other agents	.25	-.11	.05	.14	.25	.13	.14	.17	-.02	.14	.39	-.19	.43	.35	.43	.32	.31	.18	.06	.01	.38	.34	.33	.31	.27	.29	.30	.33	.31	.34	.06	-.23	.17	1.00						
35. Newspapers - Dis. Hort.	.40	-.18	.00	.10	.35	.12	.28	.09	-.03	.11	.39	-.06	.37	.41	.34	.31	.21	.27	.21	-.00	.30	.27	.49	.36	.49	.32	.26	.36	.51	.31	.28	.16	.14	.29	1.00					
36. Newspapers - Other agents	.28	-.16	-.12	.20	.16	.25	.16	-.07	-.14	.01	.40	-.11	.29	.26	.26	.21	.11	.14	.15	.05	.22	.22	.22	.28	.24	.33	.15	.35	.50	.32	.03	.21	.03	.33	.58	1.00				
37. Meetings - L.M.H.I.A.	.31	-.19	.10	.17	.47	.31	.21	.12	.02	.20	.45	.08	.47	.39	.49	.38	.37	.38	.12	-.11	.36	.40	.29	.23	.34	.27	.42	.43	.40	.36	.23	.22	.22	.43	.29	.25	1.00									
38. Local Meetings, F. Days, Dem.	.23	-.18	.04	.23	.33	.00	.28	.10	-.07	.10	.48	-.03	.54	.46	.58	.61	.51	.57	.35	-.26	.48	.52	.32	.31	.33	.32	.41	.49	.40	.48	.02	.08	.22	.54	.15	.13	.45	1.00								
39. Short Courses (1966)	.26	-.01	.16	.08	.70	.26	.15	.19	-.01	.15	.40	.17	.39	.36	.44	.33	.36	.32	.11	-.10	.32	.35	.35	.22	.38	.20	.39	.22	.39	.34	.29	.19	.23	.38	.30	.15	.61	.36	1.00							
40. Short Courses (1967)	.36	-.17	.12	.07	.52	.16	.22	.05	-.04	.15	.32	.27	.36	.35	.38	.40	.33	.37	.01	-.13	.31	.32	.38	.30	.39	.32	.32	.33	.29	.35	.34	.27	.13	.23	.34	.14	.60	.30	.64	1.00						
41. Extension Contact (All)	.58	-.24	.05	.20	.44	.26	.39	.11	-.07	.14	.58	-.08	.55	.58	.54	.53	.49	.50	.20	-.04	.52	.46	.50	.40	.67	.50	.54	.59	.73	.58	.36	.45	.21	.53	.66	.61	.47	.49	.49	.43	1.00					
42. Extension Contact - Dis. Hort.	.64	-.15	.08	.12	.43	.17	.32	.11	-.01	.08	.48	-.03	.37	.49	.39	.36	.35	.47	.08	.01	.39	.26	.61	.27	.76	.28	.60	.34	.63	.38	.47	.36	.34	.33	.61	.39	.42	.33	.52	.49	.81	1.00				
43. Personal Contact (All)	.51	-.15	.13	.25	.35	.30	.43	.09	-.02	.16	.51	-.04	.61	.63	.59	.57	.57	.57	.13	-.07	.60	.52	.59	.58	.78	.69	.71	.73	.48	.59	.28	.33	.26	.43	.55	.37	.49	.53	.43	.50	.78	.71	1.00			
44. Impersonal Contact (All)	.55	-.15	.05	.20	.39	.24	.28	.12	-.07	.15	.58	-.09	.50	.52	.49	.46	.39	.39	.19	-.01	.46	.37	.47	.41	.55	.48	.49	.57	.72	.65	.41	.49	.27	.58	.73	.70	.50	.43	.47	.44	.91	.74	.72	1.00		
45. Personal Contact - Dis. Hort.	.58	-.06	.22	.08	.33	.20	.25	.19	.12	.14	.36	-.07	.45	.56	.46	.41	.44	.53	.10	-.03	.51	.36	.78	.32	.88	.26	.82	.35	.45	.38	.29	.34	.37	.36	.50	.25	.42	.43	.45	.44	.70	.80	.85	.61	1.00	
46. Impersonal Contact - Dis. Hort.	.53	-.21	.01	.20	.44	.20	.30	.06	-.02	.15	.51	-.08	.37	.46	.40	.36	.31	.36	.22	.03	.37	.24	.47	.29	.60	.33	.41	.42	.81	.40	.53	.28	.37	.33	.81	.52	.43	.30	.46	.42	.80	.80	.62	.86	.60	1.00
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46

NOTE: The underlined coefficients show a high degree of association. A significance test for r was carried out using the null hypothesis of no correlation with a .01 level of significance. The test is based on the assumption that under the null hypothesis of no correlation, the sampling distribution of the correlation coefficient can be approximated closely with a normal curve having the mean 0 and the standard deviation $1/\sqrt{n-1}$ where n = the sample size. Therefore, the criterion is to reject the null hypothesis if $r < -2.58/\sqrt{n-1}$ or $r > 2.58/\sqrt{n-1}$.

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TABLE XXIV

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY AGRICULTURAL ADULT EDUCATION

Adopter Category	Agricultural adult education		
	Attended Courses	Did not Attend courses	Number of Respondents
	%	%	
Laggard	12.0	12.0	12
Late majority	20.0	36.0	28
Early majority	44.0	42.0	43
Early adopter-innovator	24.0	10.0	17
Total	100.0	100.0	100

TABLE XXV

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY ATTENDANCE AT THE 1966 ANNUAL SHORT COURSE (L.M.H.I.A.)

Adopter Category	Attendance at 1966 annual short course			
	Did not attend	one day only	both days	Number of Respondents
	%	%	%	
Laggard	13.6	6.3	12.0	12
Late majority	37.3	25.0	8.0	28
Early majority	37.3	50.0	52.0	43
Early adopter-innovator	11.8	18.7	28.0	17
Total	100.0	100.0	100.0	100

TABLE XXVI

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY ATTENDANCE AT THE 1967 ANNUAL SHORT COURSE (L.M.H.I.A.)

Adopter Category	Attendance at 1967 annual short course Did not attend %	one day only %	both days %	Number of respondents
Laggard	15.5	0.0	5.9	12
Late majority	35.2	25.0	0.0	28
Early majority	38.0	50.0	58.8	43
Early adopter-innovator	11.3	25.0	35.3	17
Total	100.0	100.0	100.0	100

TABLE XXVII

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY ATTENDANCE AT THE 1966 ANNUAL SHORT COURSE IN WASHINGTON, U.S.A.

Adopter Category	Attendance at the 1966 annual short course in Washington, U.S.A. Attended %	Did not Attend %	Number of Respondents
Laggard	10.0	12.2	12
Late majority	10.0	30.0	28
Early majority	50.0	42.2	43
Early adopter-innovator	30.0	15.6	17
Total	100.0	100.0	100

TABLE XXVIII

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY ATTENDANCE AT THE 1967 ANNUAL SHORT COURSE IN WASHINGTON, U.S.A.

Adopter Category	Attendance at the 1967 annual short course in Washington, U.S.A.		
	Attended %	Did not Attend %	Number of Respondents
Laggard	16.7	11.7	12
Late majority	16.7	28.7	28
Early majority	33.3	43.6	43
Early adopter-innovator	33.3	16.0	17
Total	100.0	100.0	100

TABLE XXIX

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY EXTENSION CONTACT WITH THE DISTRICT HORTICULTURIST THROUGH OFFICE VISITS

Adopter Category	Frequency of contact with District Horticulturist			
	No Contact %	seldom or occasionally %	frequently or very frequently %	Number of Respondents
Laggard	14.0	12.1	0.0	12
Late majority	31.6	27.3	10.0	28
Early majority	45.6	42.4	30.0	43
Early adopter-innovator	8.8	18.2	60.0	17
Total	100.0	100.0	100.0	100

TABLE XXX

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY EXTENSION CONTACT WITH THE DISTRICT HORTICULTURIST THROUGH TELEPHONE

Adopter Category	Frequency of contact with D.H. No Contact %	seldom or occasionally %	frequently or very frequently %	Number of respondents
Laggard	24.3	8.3	0.0	12
Late majority	43.3	19.4	18.6	28
Early majority	29.7	58.3	40.7	43
Early adopter-innovator	2.7	13.9	40.7	17
Total	100.0	100.0	100.0	100

TABLE XXXI

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY EXTENSION CONTACT WITH THE DISTRICT HORTICULTURIST THROUGH FARM VISITS

Adopter Category	Frequency of contact with D.H. No Contact %	seldom or occasionally %	frequently or very frequently %	Number of respondents
Laggard	25.0	2.3	0.0	12
Late majority	47.7	13.6	8.3	28
Early majority	22.7	63.6	41.7	43
Early adopter-innovator	4.6	20.5	50.0	17
Total	100.0	100.0	100.0	100

TABLE XXXII

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY EXTENSION CONTACT WITH THE DISTRICT HORTICULTURIST THROUGH MAIL

	Frequency of contact with D.H.			
Adopter Category	No Contact %	seldom or occasionally %	frequently or very frequently %	Number of respondents
Laggard	38.9	9.1	5.0	12
Late majority	44.4	18.2	26.7	28
Early majority	5.6	54.5	50.0	43
Early adopter-innovator	11.1	18.2	18.3	17
Total	100.0	100.0	100.0	100

TABLE XXXIII

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY EXTENSION CONTACT WITH THE DISTRICT HORTICULTURIST THROUGH RADIO ANNOUNCEMENTS

	Frequency of contact with D.H.			
Adopter Category	No Contact %	seldom or occasionally %	frequently or very frequently %	Number of respondents
Laggard	17.5	7.1	0.0	12
Late majority	29.8	28.6	20.0	28
Early majority	43.9	46.4	33.3	43
Early adopter-innovator	8.8	17.9	46.7	17
Total	100.0	100.0	100.0	100

TABLE XXXIV

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY EXTENSION CONTACT WITH THE DISTRICT HORTICULTURIST THROUGH TELEVISION

Adopter Category	Frequency of contact with D. H.		
	No Contact %	Contact Used %	Number of Respondents
Laggard	12.4	10.0	12
Late majority	29.2	20.0	28
Early majority	43.8	30.0	42
Early adopter-innovator	14.6	40.0	17
Total	100.0	100.0	99

TABLE XXXV

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY EXTENSION CONTACT WITH THE DISTRICT HORTICULTURIST THROUGH NEWSPAPER ARTICLES

Adopter Category	Frequency of contact with D. H.			
	No Contact %	seldom or occasionally %	frequently or very frequently %	Number of respondents
Laggard	30.6	2.4	0.0	12
Late majority	30.6	28.6	22.7	28
Early majority	30.6	50.0	50.0	43
Early adopter-innovator	8.2	19.0	27.3	17
Total	100.0	100.0	100.0	100

TABLE XXXVI

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY ATTENDANCE AT DEMONSTRATIONS, FIELD DAYS AND LOCAL MEETINGS

Adopter category	Attendance at demonstrations, field days and meetings			
	Did not attend any %	attended one only %	attended more than one %	Number of respondents
Laggard	13.5	5.9	12.9	12
Late majority	36.5	29.4	12.9	28
Early majority	34.6	52.9	51.6	43
Early adopter-innovator	15.4	11.8	22.6	17
Total	100.0	100.0	100.0	100

TABLE XXXVII

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY ATTENDANCE AT MEETINGS OF THE L. M. H. I. A.*

Adopter Category	Attendance at meetings of the L. M. H. I. A.			
	Did not attend any %	attended only one %	attended more than one %	Number of respondents
Laggard	16.7	11.1	3.2	12
Late majority	36.7	22.2	12.9	28
Early majority	33.3	55.6	58.1	43
Early adopter-innovator	13.3	11.1	25.8	17
Total	100.0	100.0	100.0	100

* Lower Mainland Horticultural Improvement Association

ERIC Clearinghouse
APR 6 1970
on Adult Education

TABLE XXXVIII

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY NUMBER OF CONTACTS WITH THE DISTRICT HORTICULTURIST

Adopter Category	Number of extension contacts with D.H.			
	1 or no contact %	2 - 4 contacts %	5 - 7 contacts %	Number of respondents
Laggard	38.9	8.7	2.8	12
Late majority	38.9	34.8	13.9	28
Early majority	16.7	50.0	47.2	43
Early adopter-innovator	5.5	6.5	36.1	17
Total	100.0	100.0	100.0	100

TABLE XXXIX

PERCENTAGE DISTRIBUTION OF RESPONDENTS BY ADOPTER CATEGORY AND BY ALL EXTENSION CONTACTS

Adopter Category	Extension contact score		
	10 or less %	11 or more %	Number of respondents
Laggard	25.0	4.8	12
Late majority	41.7	19.0	27
Early majority	27.8	52.4	43
Early adopter-innovator	5.5	23.8	17
Total	100.0	100.0	100